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SCHOOL OF MEDICINE

Announcement for the 156th Annual Session
1921-1922



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CATALOGUE AND ANNOUNCEMENTS OF THE UNIVERSITY

Copies of the University Catalogue may be obtained upon application to the Secretary of the University, 3446 Walnut Street, Philadelphia.

The Announcements of the several Schools of the University, *containing more detailed information as to courses than is given in the University Catalogue*, may be had by application to the Deans or Directors of those schools. The list of these Announcements follows:

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THE COLLEGE COURSES FOR TEACHERS. *Apply to the Director, College Hall.*

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UNIVERSITY OF PENNSYLVANIA
BULLETIN

SCHOOL OF MEDICINE

Announcement for the 156th Annual Session

1921-1922



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PHILADELPHIA
PRESS OF THE UNIVERSITY OF PENNSYLVANIA
1921

CALENDAR FOR 1921-1922

1921.

- July 1, Friday Applications for admission should be presented on or before this date.
- July 15, Friday Notifications of acceptance or non-acceptance for enrollment sent out.
- Sept. 19, Monday Competitive Examinations for Medical Scholarships begin 10 A. M.
- Sept. 19, Monday Re-examinations begin 2 P. M.
- Sept. 30, Friday Session begins.
- Nov. 23, Wednesday Thanksgiving Recess begins 6 P. M.
- Nov. 28, Monday Thanksgiving Recess ends 9 A. M.
- Dec. 22, Thursday Christmas Recess begins 6 P. M.

1922.

- Jan. 2, Monday Christmas Recess ends 9 A. M.
- Jan. 30, Monday Mid-Year Examinations begin 9 A. M.
- Feb. 22, Wednesday University Day: Recess.
- Mar. 22, Wednesday Easter Recess begins 6 P. M.
- Mar. 29, Tuesday Easter Recess ends 9 A. M.
- May 1, Monday Last day for receipt of Prize Essays and Reports.
- May 29, Monday Final Examinations, Fourth-Year Class, begin.
- June 5, Monday Final Examinations, other Classes, begin.
- June 21, Wednesday Commencement.

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SCHOOL OF MEDICINE*

On September 23, 1921, the 156th annual session of the School of Medicine will be opened, to continue until June 21, 1922, when the annual commencement exercises for the term will be held.

This venerable institution, the oldest Medical School in the United States, was founded in 1765 by DR. JOHN MORGAN, who filled in it the first medical professorship created in America. In his opening "Discourse upon the Institution of Medical Schools in America," delivered in the College of Philadelphia, May 30, 1765, DR. MORGAN uttered these prophetic words: "Perhaps this medical institution, the first of its kind in America, though small in its beginning, may receive a constant increase of strength, and annually exert new vigor. It may collect a number of young persons, of more than ordinary abilities, and so improve their knowledge as to spread its reputation to distant parts. By sending these abroad duly qualified, or by exciting an emulation amongst men of parts and literature, it may give birth to other useful institutions of a similar nature, or occasional rise, by its example, to numerous societies of different kinds, calculated to spread the light of knowledge through the whole American continent, wherever inhabited."

Through DR. MORGAN, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the eighteenth century. To DR. MORGAN was soon joined another pupil of CULLEN, DR. WILLIAM SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, methods of instruction in which were substantially adopted here. In the next year DR. ADAM KUHN was added as a Professor of Botany and Materia Medica; and on June 21, 1768, a Commencement was held at which medical honors were bestowed, the first in point of time in America. In 1769, DR. BENJAMIN RUSH was elected to the Professorship of Chemistry, while DR. THOMAS BOND, one of the trustees of the College of Philadelphia, delivered lectures on Clinical Medicine in the Pennsylvania Hospital.

To the faculty thus composed of MORGAN, SHIPPEN, KUHN and

* The authorities of the school reserve the right to make such modifications in connection with the announcements embodied in this catalogue as may from time to time be required or deemed wise without the formality of further notice.

RUSH have succeeded, at various times, professors whose reputations have been national, as WOODHOUSE, BARTON, WISTAR, CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GEORGE B. WOOD, HODGE, FRANCIS GURNEY SMITH, HENRY H. SMITH, LEIDY, AGNEW, GOODELL, PEPPER, STILLE, R. A. F. PENROSE, H. C. WOOD, ASHHURST, NORRIS, TYSON, DUHRING and WHITE.

The Medical School has been housed during the past century and a half in various buildings; the first, known as Anatomical or Surgeon's Hall, was located on Fifth Street above Walnut. Later the University having purchased, in 1802, the house erected for George Washington on Ninth Street, where the present United States Post Office is located, the Medical School occupied an addition to the building. This, in 1818, was rebuilt and considerably enlarged. In 1829 the "Presidential Mansion" was torn down and two buildings were erected—one for the College and the other for the Medical School. In 1873 the University moved to its present location in West Philadelphia adjoining the grounds of the Philadelphia General Hospital or Blockley. Medical Hall and the University Hospital were erected on the campus at that time. The Hospital was the first in this country to be built for the use of a Medical School. The Staff has from the beginning consisted solely of members of the faculty and the medical students for the last forty years have received most of their medical and surgical training in its wards and dispensaries.

In 1892 the Laboratory of Hygiene was built and in 1904 a new building was erected to accommodate the Laboratories of Pathology, Physiology and Pharmacology. Medical Hall was shortly thereafter vacated. The Robert Hare Laboratory of Chemistry, erected in 1877 and at one time the home of the Dental School, now houses the General Chemical Laboratories of the School of Medicine, the Laboratory of Physiological Chemistry and on the top floor the Dissecting Room.

The two-year course of instruction was changed in 1877 to three years and in 1893 to four years. In 1909, in addition to graduation from high school, one year's college work with courses in Physics, Biology and Chemistry was required for admission to the Medical School. In 1910 this was raised to two years of college work.

With the foundation of the John Rhea Barton Professorship of Surgery in 1878 the first endowed chair in a Medical School in this country was created.

The Wistar Institute of Anatomy and Biology, incorporated in 1892, was the first American University Institute devoted to advanced study and research in Anatomy and Biology.

In 1894 the William Pepper Laboratory of Clinical Medicine was erected adjoining the University Hospital, the purpose of this Laboratory being to promote the interests of the patients by providing facilities for the prosecution of minute clinical studies and original researches. This was the first Clinical Laboratory in a separate building of its own to be erected in this country.

The Henry Phipps Institute for the study, treatment and prevention of tuberculosis, was established in 1903. The new building, located at Seventh and Lombard Streets, was completed in 1913. The Institute was the first fully organized and equipped institution of the kind with University connection.

In 1909 the University of Pennsylvania originated the first graduate courses in Public Health leading to the degree of Dr.P.H. The Laboratory of Hygiene was the first separate building erected for research work in Hygiene and for the teaching of this subject. The School of Hygiene and Public Health was established in 1920.

In 1910 the Department of Research Medicine was organized, this being the first University Department of the kind instituted in this country in which the workers are expected to devote practically their entire time to research.

In 1916 the merger between the Medico-Chirurgical College of Philadelphia and the University of Pennsylvania was completed and the Medico-Chirurgical College Graduate School of Medicine of the University of Pennsylvania was organized.

In 1918 the Philadelphia Polyclinic and College for Graduates in Medicine merged with the Graduate School of Medicine and formed the Polyclinic Section.

The number of graduates in the School of Medicine is 14,551.

OFFICERS AND FACULTY

THE UNIVERSITY

Acting Provost—JOSIAH H. PENNIMAN, PH.D., LL.D.

Office, 102 College Hall.

Secretary—EDWARD W. MUMFORD, PH.B.

Office, 3446 Walnut Street.

Treasurer—F. CORLIES MORGAN, A.B.

Office, 3446 Walnut Street.

Adviser of Women—LOUISE H. SNOWDEN, B.S.

Office, Sergeant Hall, Thirty-fourth Street above Walnut. Office hours, 10 A. M. to 12 M., 2 to 4 P. M.

Bursar—HORACE R. BARNES, A.M.

Office, 3433 Woodland Avenue.

Student Physicians—DR. J. H. MUSSER, JR., DR. ALEXANDER RANDALL,

DR. A. W. PHILLIPS, DR. J. A. SMITH, DR. GEORGE WILSON.

Office, University Hospital. Office hours, 1 to 1.45 P. M.

Dean of the Graduate Medical Faculty—GEORGE H. MEEKER, PH.D., Sc.D., LL.D.

Office 80, Medical Laboratories. Office open, 9 A. M. to 5 P. M.; Saturday, 9 A. M. to 1 P. M.

Director of the School of Hygiene and Public Health—ALEXANDER C. ABBOTT, M.D., DR.P.H., Sc.D.

Office, Laboratory of Hygiene, Thirty-fourth Street below Walnut.

Office hours, 9 A. M. to 12 M., 2 to 5 P. M.; Saturday, 9 A. M. to 1 P. M.

SCHOOL OF MEDICINE

Dean of the Medical Faculty—WILLIAM PEPPER, A.B., M.D.

Office, Medical Laboratories on Hamilton Walk (Thirty-sixth and Pine Streets). Office open, 9 A. M. to 5 P. M.; Saturdays, 9 A. M. to 1 P. M.

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EDWARD T. REICHERT, M.D., Sc.D., Emeritus Professor of Physiology.

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RALPH GOLDSMITH, M.D., Assistant Instructor in Surgery.
STIRLING W. MOORHEAD, M.D., Assistant Instructor in Genito-Urinary Surgery.
ABRAHAM M. ORNSTEEN, M.D., Assistant Instructor in Neurology.
MARION REA, M.D., Assistant Instructor in Medicine.
P. H. SHAW, M.D., Assistant Instructor in Ophthalmology.
SAMUEL STURGIS, M.D., Assistant Instructor in Surgery.
NATHANIEL W. WINKELMAN, M.D., Assistant Instructor in Neurology.
ARTURO PADILLA, M.D., Assistant Instructor in Otology.
CHARLES S. SHAFER, M.D., Assistant Instructor in Anatomy.
CHARLES A. BEHNEY, M.D., Assistant Instructor in Gynecology.
FRANK WALTON BURGE, M.D., Assistant Instructor in Medicine.
WALTER L. CARISS, M.D., Assistant Instructor in Laryngology.
JOHN C. HIRST, 2ND, M.D., Assistant Instructor in Obstetrics.
THOMAS M. MacMILLAN, M.D., Assistant Instructor in Medicine and Bacteriologist and Serologist in Cutaneous Medicine.
ALBERT F. MOXEY, M.D., Assistant Instructor in Orthopaedic Surgery.
HENRY B. MIKELBERG, M.D., Assistant Instructor in Gynecology.

ASSISTANTS

- JOSEPH M. HAYMAN, A.B., Student Assistant in Cutaneous Medicine.

GENERAL INFORMATION

TUITION FEES AND EXPENSES

The Trustees of the University of Pennsylvania reserve the right at any time to amend or add to the regulations of the University, including those concerning fees and method of payment, and to make such changes applicable to students at present in the University, as well as to new students. The rules governing payments are given in the University Catalogue.

BOND TO BE FILED.—All new students entering courses in the University leading to a degree are required to give a bond signed by a parent, guardian or other responsible surety, guaranteeing payment of fees, rents, hospital or other charges.

FIRST TERM FEES are payable upon date of matriculation.

LATE REGISTRATION FEE.—Students in the School of Medicine, who fail to register, or to complete registration by the satisfaction of all term obligations at the Bursar's Office, within two weeks after the opening day of either term of the University, shall be required to pay an additional fee of Five Dollars (\$5.00) for late registration.

A student who repeats the studies of the year will be required to pay the full tuition fee.

It is expected of every student, either before or by the time of entrance to the second-year class, that he will provide for himself, either by purchase, rental or otherwise, a microscope of a grade suitable for general medical work.

FIRST YEAR

Matriculation fee, must be paid by all new students entering the University.....	\$5.00
For general tuition ticket, admitting to all lectures, and including all the laboratory work assigned to this year.....	300.00
Use of dissection material (four parts).....a part	2.00
Gymnasium and Houston Club fee.....	20.00
Breakage deposit.....	15.00

SECOND YEAR

For general tuition ticket, admitting to all the lectures, and including all the laboratory work assigned to this year.....	\$300.00
Gymnasium and Houston Club fee.....	20.00

THIRD YEAR

For general tuition ticket, admitting to all the lectures, and
 practical courses assigned to this year.....\$300.00
 Gymnasium and Houston Club fee..... 20.00

FOURTH YEAR

For general tuition ticket, admitting to all the lectures, and the
 practical courses assigned to this year (no graduation fee)...\$300.00
 Use of material for operations in Surgery..... \$4.00 to 6.00
 Gymnasium and Houston Club fee..... 20.00

All payments should be made to Horace R. Barnes, Bursar, 3433
 Woodland Avenue.

ACCOMMODATIONS FOR STUDENTS

For information about students' dormitories apply to Bursar's
 Office, 3433 Woodland Avenue.

The University reserves the right to refuse permission to students
 to reside in any house not approved by the University Committee on
 Students' Residences. The Committee has voted not to approve houses
 offering accommodations to both sexes.

LISTS OF ROOMS.—The Committee prepares during the spring for
 students in the Summer School, and during the late summer for students
 in the regular session of the University, lists of approved lodging and
 boarding houses near the University, all of which have been personally
 inspected. These lists may be had from the Recorder, 3437 Woodland
 Avenue, or from the Deans, or from the Bursar.

A **CARD CATALOGUE** list of available houses and apartments, in other
 sections of the city (but not inspected), may be consulted at the
 Recorder's Office; as also a small list of members of the Faculty and
 private families willing to accommodate one or more students. The
 University Committee on Students' Residences desires to include in this
 list only those houses which offer sanitary and wholesome quarters at
 reasonable charges.

Before engaging quarters students should have a definite contract in
 writing, and are advised to request receipts for all payments.

STUDENT EMPLOYMENT

MEN.—An employment bureau which undertakes to serve self-
 supporting students is managed by the Christian Association of the
 University, at its office located on the third floor of Houston Hall.
 Each year between three hundred and four hundred men receive prac-

tical assistance in securing positions. A man's earnings, of course, largely depend upon the number of hours he can give to outside work, but the majority of applicants are able to secure at least their board and room or the equivalent.

WOMEN.—The Young Women's Christian Association, in College Hall, maintains an employment bureau for women students. Work for about fifty students is found each year by this bureau.

SCHOLARSHIPS

I. UNIVERSITY SCHOLARSHIPS. A competitive examination of candidates who have been accepted for enrollment in the Medical School, to fill three free scholarships is held annually. (In 1921, beginning on Monday, September 19, at 10 A. M., and continuing on the two following days in the Medical School.)

Detailed information about these scholarships may be had upon application to the Dean of the School of Medicine. Each candidate will be required:

First. To have satisfied the entrance requirements as stated on pages 21-24, and to have been accepted for enrollment.

Second. To furnish satisfactory evidence in writing from three reputable persons, that he is without means to defray the expenses of a medical education.

Third. To write an autobiography of about 300 words in length, which will serve as a test of his qualifications in orthography and grammar. This is to be written on Monday, September 19, at 10 A. M.

Fourth. To undergo examinations in the following subjects:*

1. Any two of these four languages:

(a) Latin (second and fourth books of Horace's *Odes*.)

(b) Greek (first four books of the *Iliad*.)—The examination will include prosody, syntax and Hómeric dialect.

(c) French.—Elementary French, including grammar, prose composition (Joynes' *Minimum French Grammar and Reader*), and reading at sight in books of the grade of the following:

Francisque Sarcey, *Le Siege de Paris*.

Baumarchais, *Le Barbier de Seville*.

Anatole France, *Le Crime de Sylvestre Bonnard*.

* A percentage of not less than 50 must be obtained in each one of the subjects in which a competitor undergoes examination, and an average percentage of at least 70 must be obtained on the whole examination that a competitor may have his name placed upon the eligible list. The appointments will be made from this eligible list.

- (d) German.—Elementary German, including Learned's *German Grammar*, Wesselhoeft's or Harris' *Prose Composition*, and reading at sight in books of the grade of the following:

Heine's *Harzreise*.

Eichendorff's *Aus dem Leben eines Taugenichts*.

Wildenbruch's *Das edle Blut*.

2. Any two of these three sciences:

- (a) Physics. (As in Gage's *Principles of Physics*—Goodspeed's Revision, Crew's *General Physics*, or Duff's *Text-book of Physics*.)
- (b) Chemistry. General (as in Richter's *Inorganic Chemistry* or its equivalent); Organic (as in H. T. Clarke).
- (c) Zoölogy or Biology. (Zoölogy as in Galloway's *Text-book of Zoölogy* or Hegner's *College Biology*. Biology as in Needham's *General Biology*.)

Fifth. To pay an examination fee of \$5.00, which is not returned, but is accepted as the matriculation fee in case the candidate is successful.

Candidates who propose presenting themselves for examination, must present the certificates demanded by the second requirement of the competition, to the Dean *before September 1*. This requirement having been complied with, candidates will appear without further notice at the time stated for examinations.

II. PHILADELPHIA FREE SCHOLARSHIPS.—Under an agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of graduates of the public schools. The candidates for these scholarships are examined by the Board of Public Education, and award is made to those who reach the highest grade, as vacancies occur from year to year.

Under another agreement with the city of Philadelphia, seventy-five free scholarships exist in the University for the benefit of graduates from local schools in general. Information regarding the latter scholarships should be obtained from the Mayor's Office.

III. In addition, certain non-competitive scholarships are available, and will be found listed in the University Catalogue.

PRIZES TO BE AWARDED, JUNE, 1922

NOTE.—*Theses and Reports in competition for Prizes must be presented to the Dean on or before May 1 of each year. Prizes will not be awarded unless the work submitted reaches a high standard of excellence.*

THE ALUMNI MEDAL and a prize of \$50.00 is offered by the Society of the Alumni of the School of Medicine of the University, to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible.)

THE DR. SPENCER MORRIS PRIZE.—The annual income, derived from the investment of Ten Thousand Dollars, will be awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine.

THE FREDERICK A. PACKARD PRIZE of One Hundred Dollars is offered by a friend of the University to the member of the Graduating Class who has proven to be the most proficient in the course in Clinical Medicine.

The Professor of Obstetrics offers a Prize of an obstetrical forceps to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital.

A Prize of a completely equipped obstetrical bag is offered by the Professor of Obstetrics to the member of the fourth-year class presenting the best notes on the conference and clinics of the fourth year in Obstetrics.

DR. A. O. J. KELLY PRIZE FUND.—Founded March 26, 1912, by contributions from friends of Dr. A. O. J. Kelly, deceased. The Kelly Prize will be given to a member of the Fourth-Year Medical Class who has made an especially meritorious report of some clinical observation in the regular University work.

CHARLES A. OLIVER MEMORIAL PRIZE.—Founded June 16, 1913, by Dr. Charles A. Oliver. This Prize, in the form of a gold medal, will be given to "those students in the Graduating Class in the Department of Medicine who shall annually receive the highest average and pass the best examination in Ophthalmology."

ADMISSION

LIMITATION OF SIZE OF CLASSES

The first and second year classes of the School of Medicine of the University of Pennsylvania are limited to one hundred students each.

VACCINATION

According to the Regulations of the Bureau of Health of the City of Philadelphia, the University of Pennsylvania is required to refuse admission to any person except upon a certificate signed by a physician stating that such person has been recently vaccinated or that he or she has previously had smallpox. All persons matriculating in the School of Medicine will, therefore, have to present such a certificate at the time of matriculation and in default of such certificate must be vaccinated.

REQUIREMENTS OF ADMISSION

The minimum requirements are a standard four-year high school course or its equivalent, plus two years of work in an approved college of arts and science, aggregating not less than 30 units,* including courses in French or German and in English, Physics, Chemistry and General Biology or Zoölogy, with appropriate laboratory work (see detailed explanation below).

No entrance conditions are allowed. It is not now, and in fact it has not been possible since 1910, to enter the School of Medicine with deficiencies in the entrance requirements and to make these up either during the first year, between the first and second years, or later.

It is recommended that students in a position to complete their college courses should do so, whenever possible, including in their courses the necessary work in the sciences. Each year the percentage of students with collegiate degrees entering medical schools in this country is steadily increasing. Men and women are admitted upon the same terms.

APPLICATION FOR ADMISSION

Applications should be made to the Dean of the School of Medicine, who will furnish a printed application blank, part of which is to be

* A unit of college work is the equivalent of one hour of lecture or recitation each week for the full academic year or of two hours of laboratory work each week for the same period.

filled out by the candidate and part by the proper authorities of the College at which the candidate has prepared for the study of Medicine.

Candidates who present certificates filled out on the application blank, from recognized colleges giving evidence that they have met all the requirements of the School of Medicine of the University of Pennsylvania will be admitted without examinations, if vacancies exist in the class to which admission is sought. The certificates must show the exact amount of French or German, English, Physics, Chemistry and Zoölogy or General Biology studied.

Time spent in professional schools of law, dentistry, pharmacy or veterinary medicine, or in normal schools or business college will not be accepted as the equivalent of any part of the two years of college work required for admission to the School of Medicine. At least two full years of the candidate's pre-medical training must have been spent in some recognized college of arts and science. No amount of time spent in a professional school can be considered as having given the collegiate training demanded by the entrance requirements of the School of Medicine of the University of Pennsylvania.

The decision as to whether a candidate's preparation meets the entrance requirements of the University of Pennsylvania rests with an Admission Committee composed of three members of the Faculty of the College of this University. As the size of the first-year class is limited, it is proposed, in case a greater number apply, to choose one hundred of the most promising applicants. The selection will be made after carefully considering the following points: the character of the college at which the candidate prepared; the standing of the applicant, especially in the three sciences and the opinion held by one of the science teachers of the candidate's ability and fitness to pursue the study of medicine at the University of Pennsylvania, this opinion to be sent to the Dean in a personal letter.

Applications for admission may be presented at any time before July 1st, but will not be considered officially before that date except in unusual circumstances. Notification of acceptance for enrollment as a student or of non-acceptance through lack of space will be sent all candidates not later than July 15th.

COLLEGE WORK REQUIRED FOR ADMISSION

A. The following subjects must be offered and in the sciences include laboratory work. The candidate's laboratory note books should be presented, certified by the teacher in the usual way.

Subjects	Units
Chemistry.—General Inorganic Chemistry at least three units, and Organic Chemistry at least two units, a total of at least . . .	6
Physics	4
Zoölogy or General Biology	4
French or German	3
English	6

For applicants whose native language is other than English, the English requirements above will be transferred to the applicant's native language, and English may be offered by such applicant in lieu of other modern scientific languages. However, in all such instances, the applicant must be able to readily read, write and speak English.

(Elementary courses in either French or German taken in college will not be considered as meeting this requirement. For example, a student who has not presented French for college entrance must, in order to receive credit for three units of college French, take first in college a course in elementary French followed by a three-unit course in more advanced French. This rule holds also for German.)

(For full description of the three science requirements see below.)

B. At least seven units, made up of subjects which are open to Freshmen and Sophomores in colleges or universities of recognized standing.

For description of appropriate branches representing this portion of the candidate's preparation, reference may be made to the College Announcement or the Annual Catalogue of this University.

The various studies are not here detailed; since considerable latitude of election exists in many colleges and more or less variation in prescribed courses also occurs in different college curricula. Such differences occasioned by election or by regular requirements of institutions will be adjudged by comparison with the work of the Freshman and Sophomore Classes of the College of the University of Pennsylvania.

DETAILED DESCRIPTION OF REQUIREMENTS IN ENGLISH, CHEMISTRY, PHYSICS AND ZOÖLOGY OR BIOLOGY.

ENGLISH.—Credits for six units of collegiate English is prerequisite for admission to the School of Medicine. It may be suggested that these six units include 3 units of English composition (as in Courses 1 and 3, English Department of the College, University of Pennsylvania, for which see College Announcement), 1 unit of English language (as in Course 30, English Department of the College, University of Penn-

sylvania), and 2 units of English literature (as in Courses 40 and 42, English Department of the College, University of Pennsylvania).

CHEMISTRY.—Credit for six units in collegiate Chemistry is prerequisite for admission to the School of Medicine. These requirements are in general covered by the regular courses in chemistry in colleges recognized by this University. They are covered by Courses 1 and 11 of the Department of Chemistry of this University. Credits in chemistry (whether by diploma, certificate or on examination) presented by candidates must be equivalent to said Courses 1 and 11 of the Department of Chemistry of this University. Six units of college work in chemistry are required, but at least *two units* must be presented in *organic chemistry*. Laboratory work must accompany the course in organic as well as in inorganic chemistry.

PHYSICS.—Credit for four units of collegiate Physics is prerequisite for admission to the School of Medicine. These requirements are in general covered by the regular lecture and laboratory courses in Physics in colleges recognized by this University. Courses 1 and 2 of the Department of Physics of this University fulfil the requirements. Plane Trigonometry (Mathematics 2) is a prerequisite.

Physics 1 is an elementary College Course in General Physics, consisting of one lecture hour and two hours recitation per week for one year, and counts two units of collegiate work.

Physics 2 is a laboratory course, consisting of one lecture and two hours laboratory work per week for one year. Each student performs about twenty-five experiments chosen from the entire field of elementary Physics. This course also counts two units.

Any similar courses offered by recognized colleges, and equivalent in both amount and grade of work, will be accepted as fulfilling the requirements for admission to the School of Medicine.

GENERAL BIOLOGY OR GENERAL ZOÖLOGY.—Credit for four units of collegiate Biology or Zoölogy is prerequisite for admission to the School of Medicine. Credits in these subjects must be equivalent to Course 1 of the Department of Zoölogy (3 units) or to half of Course 1 of the Department of Zoölogy together with half of Course 1 of the Department of Botany (3 units) of this University. In addition one extra unit must be presented in similar subjects. Botany alone does not meet the requirements.

ADMISSION TO ADVANCED STANDING

Applications for admission to advanced standing in the Second, Third or Fourth Year Classes will be considered. The Second Year Class is limited to 100 students, the Third and Fourth Year Classes to

125. In consequence, more advanced standing students can be admitted to the Third Year Class than to the two other classes.

Students will only be admitted to the Second and Fourth Year Classes if vacancies have occurred.

Applicants for advanced standing must have met in full the requirements for admission (page 21), and must have attended a medical school approved by this University. Students from schools rated as "Class B" or "Class C" by the Council on Medical Education of the American Medical Association will not be admitted to advanced standing.

Applicants for admission must furnish evidence that they have satisfactorily completed courses equivalent in kind and amount to those taken by the class to which admission is sought, and must present also a letter of honorable dismissal. Students will not be admitted to advanced standing upon examination, but only upon a satisfactory record from their previous school. The University of Pennsylvania reserves the right, however, in every case to give examinations in all subjects already pursued by the class to which admission is sought, but such examinations as a matter of fact are only given in exceptional cases.

It is very essential that applications for admission be forwarded to the Dean not later than June 1st. It is also necessary that applicants send or present to the Dean their subject credentials, letters of recommendation and honorable dismissal before June 15th.

Applications for admission may be presented at any time before June 1st, but will not be considered officially until June 15th except under exceptional conditions. Notification of acceptance for enrollment as a student or of non-acceptance through lack of space or other reason will be sent all candidates before July 1st.

No student coming from another school will be allowed any privileges in this school which would have been denied him in the school which he leaves.

No student will be admitted to any class on advanced standing with a condition in any subject.

UNDERGRADUATE INSTRUCTION

The course of instruction extends over a period of four years, with one session in each year, beginning on the last Friday of September and ending on the third Wednesday in June.

The course may be said to be divided into two periods of two years each: the first period devoted to the fundamental medical sciences, Physiological Chemistry, Toxicology, Anatomy, Physiology, Bacteriology, Pharmacology and Pathology, including also Physical Diagnosis; the second period to the clinical subjects, Medicine, Surgery, Obstetrics and the Specialities.

FIRST PERIOD

The subjects of the first two years have been arranged according to a modification of the concentration system. By this system the student is enabled to concentrate his energy upon one or two subjects, and must master these before he is allowed to continue the course. Thus the first year is devoted chiefly to Anatomy, including Embryology, Normal Histology and Osteology, and to Physiological Chemistry, and Bacteriology.

The subjects of the second year follow in logical sequence those of the year preceding. The time of the second year is thus given over largely to Physiology, Pathology and Pharmacology. In addition to these the work of the second year includes a course in Toxicology.

Instruction upon the subjects of the first two years is almost entirely practical, so that the greater part of the student's time is spent in the laboratories.

The limitation of the first- and second-year classes to one hundred students each prevents the possibility of overcrowding the laboratories and insures a proper amount of individual instruction.

SECOND PERIOD

With the beginning of the third year the student enters upon the second period, which covers the third and fourth years, and is devoted almost exclusively to instruction in the so-called clinical subjects—Medicine, Surgery, Obstetrics and the Specialities. There is no sharp dividing line between the work of the third and fourth years, so that the courses in the clinical subjects may be said to cover a period of two years.

From a glance at the tabular representation of the hours of instruction for the third and fourth years (later pages), it will be seen that

arrangements have been made to keep the student fully occupied throughout each day. In point of fact, any desire to specialize before graduation is rather discouraged. It has always been the object and aim of this institution to prepare its students for the practice of general medicine, not to graduate them as "*specialists.*" *Its policy has been to offer the student a well-graded, well-proportioned and comprehensive course*, so that upon his graduation he stands prepared to *practice* medicine. Should he decide to take up a specialty after graduation, he will be the better prepared by his broad education, and still better prepared if he has had several years of clinical experience.

The above statement, however, should not be interpreted as meaning that opportunity will not be given to selected students who are capable and willing to engage in some investigative or advanced individual work, which might lead later to research work of value. Encouragement and facilities will be given to such students to gain a greater insight into the opportunities for research work and the need for trained investigators and teachers in the medical sciences.

The methods of instruction are varied, but mostly practical. The latter include ward visits, ward classes, clinical conferences and practical observation in the wards and out-patient department of the University Hospital. Systematic lectures, general clinics and recitations have been found indispensable, but play a less conspicuous part in the course.

The facilities for instruction are abundant. It is possible to offer to each student opportunities to come into personal contact under proper supervision with a large and varied series of cases. The University Hospital, with its capacity of 400 beds, is operated exclusively for the benefit of the School of Medicine. Adjoining the University campus is the Philadelphia General Hospital, with a capacity of 1,600 beds, where the wards are open to both teachers and students throughout the year; this not including the adjoining Philadelphia Insane Hospital, with over 2,000 beds, also available for teaching purposes. Material advantage is had, too, by the students of the Third-year Class in attendance in sections upon the work of the Phipps Institute for the Study, Prevention and Cure of Tuberculosis, acquired by the University through the generosity of Mr. Henry Phipps.

In addition, extramural teaching is conducted in the Children's, the Lankenau and Pennsylvania Hospitals by members of the teaching staff. A voluntary course upon the contagious diseases, conducted by the Municipal Hospital, is offered to the members of the Graduating Class.

EXAMINATIONS

First Year.—The mid-year progress examination in Anatomy (including Osteology, Syndesmology, Myology, and such other subjects as

may have been covered by the lectures on Anatomy before February 1), and final examination in Physiological Chemistry are held about February 1.

Final examinations at end of year: Anatomy and Bacteriology.

Second Year.—Progress examinations in Physiology and Materia Medica will be held about February 1, and final examination in General Pathology will be held at the same period.

Final examinations at the end of the year in Physiology, Pharmacology, Toxicology, and progress examination in Special Pathology.

Third Year.—Examinations in Ophthalmology and Hygiene will be held about February 1.

Final examinations at end of year: Medicine, Surgery, Obstetrics, Therapeutics, Applied Anatomy, Pathology and Third-year Specialties (Laryngology, Otology and Dermatology).

Fourth Year.—

Final examinations at end of year: Medicine, Surgery, Obstetrics, Gynecology and Fourth-year Specialties (Neurology and Neuropathology, Mental Diseases, Pediatrics and Genito-Urinary Surgery).

GRADUATION

At the end of the fourth year a student who has passed all the required examinations satisfactorily will receive the degree of Doctor of Medicine under the following provisions:

1. The student must be 21 years of age, and of good moral character.
2. The student must have passed satisfactory examinations in all of the required branches of the curriculum, must have attended the practical instruction in all departments, and the last year of instruction must have been at this school.
3. The student must have attended at least twelve cases of Obstetrics.
4. The student must be present at Commencement, unless excused by the Dean of the Faculty.

APPOINTMENTS TO HOSPITAL

The school strongly advises each graduate to undertake a term of service as interne in some good general hospital. Practically the entire class of 1920 have received appointment by competitive examination or otherwise; and there are each year more demands for graduates of the school for such service than can be accommodated.

The Bureau of Medical Education and Licensure of the State of Pennsylvania now requires that every applicant for licensure shall have completed a year as interne in a hospital of specified character.

COURSES OF INSTRUCTION

The figures at the right of the page indicate with fair accuracy the number of hours of instruction that each individual student receives in the various required courses.

ANATOMY

GEORGE A. PIERSOL, M.D.....	<i>Professor of Anatomy</i>
JOHN C. HEISLER, M.D.....	<i>Professor of Anatomy</i>
WILLIAM H. F. ADDISON, M.B.	<i>Professor of Histology and Embryology</i>
T. TURNER THOMAS, M.D.....	<i>Associate Professor of Applied Anatomy</i>
GEORGE FETTEROLF, M.D.....	<i>Assistant Professor of Anatomy</i>
WALTER S. CORNELL, M.D.....	} <i>Instructors in Osteology</i>
HOWARD A. SUTTON, M.D.....	
J. REX HOBENSACK, M.D.....	} <i>Instructors in Anatomy</i>
PENN-GASKELL SKILLERN, JR., M.D.	
J. J. ROBRECHT, M.D.....	
N. S. ROTHSCHILD, M.D.....	
ROBERT C. PARRISH, M.D.....	
STEPHEN MITTERLING, M.D.....	} <i>Instructors in Histology</i>
GEORGE H. CHAMBERS, M.D.....	
J. HOWARD SMITH, M.D.....	
C. D. DANIELS, M.D.....	
WILLIAM HARTZ, M.D.....	
VRAM NEDURIAN, M.D.....	
C. A. COPELAND, M.D.....	
SAMUEL L. IMMERMAN, M.D.....	
.....	<i>Prosector to Professor of Anatomy</i>
I. S. RAVDIN, M.D.....	<i>Prosector to Associate Professor of Applied Anatomy</i>
HENRY P. BROWN, JR., M.D.....	<i>Volunteer Assistant in Anatomy</i>
ERWIN F. FABER.....	<i>Instructor in Drawing</i>

Of the following courses in Anatomy, I to VII, inclusive, are required of candidates for the degree of Doctor of Medicine. Courses VIII to XII are not required, but may be taken by students who have had satisfactory preparatory training.

FIRST YEAR

	Hours
I. LECTURES ON SYSTEMATIC ANATOMY OF THE ORGANS. <i>Professor Piersol</i> .—Three times a week, first half year.	48
II. LECTURES ON ANATOMY OF THE CENTRAL NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE. <i>Professor Piersol</i> .—Three times a week, second half year.	48
III. LECTURES ON MYOLOGY, ANGIOLOGY AND THE PERIPHERAL NERVES. <i>Professor Heisler</i> .—Once a week throughout the year.	32
IV. LABORATORY COURSE IN HISTOLOGY AND EMBRYOLOGY. <i>Professor Addison, Drs. Chambers and Smith</i> .—Two and a half hours, twice a week, first half year; three and a half hours, twice a week, second half year.	192
V. LABORATORY COURSE IN OSTEOLOGY. <i>Drs. Cornell and Sutton</i> .—Two and a half hours, five times a week, first three weeks, first half year.	36
VI. DISSECTION. <i>Professor Heisler, Drs. Hobensack, Skillern, Rothschild, Parrish and Mitterling</i> .—Two hours and a half, five times a week, for twenty-eight weeks.	350

THIRD YEAR

VII. APPLIED ANATOMY. <i>Associate Professor Thomas</i> .—One hour, twice a week, throughout the year.	64
VIII. SPECIAL COURSE ON ANATOMY OF SENSE ORGANS. <i>Professor Piersol</i> .—February 1 to May 15; Wednesday mornings.	
IX. SPECIAL COURSE IN ANATOMY OF FRACTURES AND LUXATIONS.	
X. ADVANCED LABORATORY COURSE IN VERTEBRATE EMBRYOLOGY. <i>Professors Piersol and Addison</i> .—October 15 to May 1; mornings.	
XI. LABORATORY COURSE IN MICROSCOPICAL TECHNIQUE. <i>Professors Piersol and Addison</i> .—April 1 to May 15; three mornings weekly.	
XII. ADVANCED WORK AND ORIGINAL INVESTIGATION. <i>Professor Piersol</i> .—October to May.	

Courses I and II, three lectures a week throughout the session, present the principles, as well as details, of human anatomy, including structure and development. Especial pains are taken to impress the broader morphological significance of the details of human anatomy. These courses are exceptionally well illustrated by means of charts,

lantern, models, museum preparations and fresh dissections, the unusual resources of the Wistar Institute of Anatomy and Biology being additionally available, not only for class instruction but also for individual study.

In Course IV the student is required to mount, study and draw preparations of all of the important tissues and organs of the human body, as well as to learn the methods employed in their preparation.

Time also is devoted to the mounting and study of series of chick and mammalian embryos. The laboratory is equipped with excellent microscopes of recent model, and supplied with the most approved apparatus for histological and embryological work.

Course V includes the detailed study of the skeleton, each student being provided with bones which he is required to draw, noting the important features and principal muscular attachments. The joints are also studied on finished dissections. Bones are lent to students upon conditions similar to those governing the issue of books from a library.

Course VI forms a most important part of the first-year work, every student being required to carefully dissect and pass practical examinations upon the cadaver. The class works two and a half hours daily under the close supervision of the Professor of Anatomy and his assistants. Excellent and abundant dissecting material is assured by the improved methods of preservation and the facilities for cold storage. Opportunity for additional work is afforded to students who desire to devote more time to practical anatomy.

Course VII is a continuation of the study of anatomy, but from the standpoint of its application, and not as an abstract science. The course embraces surface anatomy, the outlines of the organs, the position of the joints, significance of bony points, muscular swells, the position and means of recognizing the various nerves and arteries; the influence of the muscles in fractures; the construction of joints in reference to luxations; a knowledge of the parts incised in amputations; how the parts influence and direct the progress of abscesses; a knowledge of the lymphatics in reference to pyogenic and carcinomatous infections; a knowledge of the position and relation of the abdominal organs necessary for diagnostic and operative purposes; also those of the chest; cerebral localization, paralysis, etc., and innumerable other facts. Attention is given to the relation of the various tissues and organs to each other, so that the operations on those parts may be understood. It is the object of the course to present to the student the subject of anatomy in such manner as to enable him to utilize it in forming diagnoses and applying methods of treatment.

Instruction is given by demonstrations. These embrace the living and dead body and anatomical preparations. Special dissections and preparations are made to illustrate and explain fractures, dislocations, amputations, ligation of arteries, the position and relation of organs by frozen sections, etc., and also by injections of wax, the affections of the joints, palmar and other abscesses, etc.

BACTERIOLOGY AND HYGIENE

ALEXANDER C. ABBOTT, M.D., Sc.D., Dr.P.H.,	
	<i>PEPPER Professor of Hygiene and Bacteriology</i>
SENECA EGBERT, M.D.....	<i>Professor of Hygiene</i>
DAVID H. BERGEY, A.M., M.D., Dr.P.H.,	
	<i>Assistant Professor of Hygiene and Bacteriology</i>
HENRY FIELD SMYTH, M.D., Dr.P.H.,	
	<i>Instructor in Hygiene and Bacteriology</i>
LUTHER S. THOMPSON, B.A.....	<i>Instructor in Bacteriology</i>
MIRIAM ISZARD, M.A.....	<i>Assistant Instructor in Bacteriology</i>
_____	THOMAS A. SCOTT <i>Fellow in Hygiene</i>
_____	GEORGE B. WOOD <i>Fellow in Hygiene</i>

BACTERIOLOGY

FIRST YEAR

Hours

LECTURES. <i>Professor Abbott.</i> —Once a week, first half year.....	16
LABORATORY. <i>Professor Abbott, Assistant Professor Bergey, Dr. Smyth, Mr. Thompson and Miss Iszard.</i> —Three and a half hours, four times a week, second half year.....	190

I. LECTURES. This course comprehends those elementary phases of the subject with which the student should be familiar at the time he begins his practical work.

II. LABORATORY COURSE. During this course the students receive instruction in the use of the microscope in bacteriological work; the methods of cultivating bacteria and of isolating them in pure cultures; the steps necessary to the identification of particular species of bacteria; the relation of bacteria to infection; the methods of immunization and vaccination; the methods of sterilization and disinfection; the testing of disinfectants; the bacteriological study of air, water and soil, etc. Such students as demonstrate ability to advance beyond the class work are given the opportunity to do so and are encouraged to pursue such studies providing the latter do not interfere with hours assigned to other subjects.

The course in detail covers the following subjects:

1. Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.
2. Culture media, methods of preparation, sterilization methods.
3. Characteristics of cultures of bacteria in general and of special forms.
4. Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.
5. Microscopic technique. Use and care of instruments, staining from cultures, section cutting, and staining and mounting of tissues.
6. Pathogenic bacteria isolation, identification and inoculation.
7. Disinfection, thermal and chemical, methods and apparatus, modes of testing efficiency.
8. Bacteriological investigation of water.
9. Bacteriological investigation of air.
10. Bacteriological investigation of soil.
11. Studies in immunity, including: the antitoxic state and the modes of inducing it; protective vaccinations with living and dead viruses; and the opsonic theory.
12. Demonstration of such protozoa as are known to be of medical significance.

HYGIENE

THIRD YEAR

Hours

LECTURES. *Professor Abbott.*—Twice a week, for first half year . . . 32

The teaching in Hygiene consists of a course of systematic lectures to the Third-year Medical students, and, if time be available, of practical exercises in the laboratory. The didactic course is compulsory for all students receiving the degree of Doctor of Medicine, while the practical course is voluntary.

The lectures are given twice weekly throughout the first term. They cover the following topics of general sanitary importance:

A consideration of the factors concerned in the direct causation of disease, and the manifold conditions of life that indirectly favor the occurrence of disease among individuals, groups of individuals and communities.

A brief sketch of the important transmissible and epidemic diseases, embracing a discussion of their modes of transmission, portals of infection, geographical and seasonable distribution and the approved methods of their prevention.

A consideration of prophylaxis in general, embracing disinfection and

disinfectants, protective vaccination and the antitoxic state, the disposal of the dead after infectious diseases, and quarantine.

The hygiene of milk production. The legal aspects of public health administration.

The atmosphere, from the chemical, physical, and biological stand-points; the air of enclosed spaces; the problems of ventilation and heating; the various pollutions of the atmosphere, such, for instance, as those from the soil, from industries, from sewers, etc., and their influence on health and disease.

Water—its sanitary significance; the characteristics of waters from various sources and their suitability to domestic needs; the pollutions to which waters from different sources are liable; the biological significance of these pollutions; interpretations of the results of analysis; natural and artificial purification of waters; the relation of water to health and disease.

Sewage—the part taken by the soil and its constituents in the disposal of organic waste; the characteristics of sewage from different sources; the various methods for the disposal of sewage; the influence of sewage disposal upon the health of communities.

PRACTICAL COURSE. *Professor Abbott, Assistant Professor Bergey and Dr. Smyth.*—The following subjects, arranged especially for the needs of those students intending to enter upon the practical pursuit of sanitary work, are taken up:

1. The atmosphere, climate and meteorological observations and records, chemical analysis, bacteriological investigation, methods of investigation, methods of ventilation and heating.

2. Water—physical, chemical and bacteriological investigation of water-supplies; methods of obtaining samples; qualitative and quantitative analysis for impurities; collection, storage and purification of water intended for domestic use; effects of filters, aeration, etc.

3. Sewage disposal, sewers, house drainage and the air of sewers.

4. Disposal of refuse, cremation of garbage, etc.

5. Soils and building sites, physical, chemical and bacteriological investigation, soil and moisture, ground air.

6. Foods—adulteration, milk and meat inspections.

7. Clothing—microscopic examination, poisonous dyes.

8. Management of contagious diseases. Practical tests of different methods of disinfection, chemical and thermal; notification, isolation and quarantine.

9. Vital statistics, registration and methods of tabulation.

10. Offensive and dangerous trades.

This course is elective for students of medicine.

COURSE IN PUBLIC HYGIENE. (See page 68.)

ORIGINAL INVESTIGATION. In addition to the foregoing set courses, facilities are offered by the Laboratory for special work. Students and graduates of this school or elsewhere will find opportunities for advanced work in any of the subjects properly coming within the scope of the Laboratory. Arrangements for such work can be made by correspondence with the Director of the Laboratory.

PHYSIOLOGICAL CHEMISTRY

ALONZO ENGLEBERT TAYLOR, M.D., LL.D.,

BENJAMIN RUSH *Professor of Physiological Chemistry*

GEORGE H. MEEKER, PH.D., SC.D., LL.D. *Professor of Chemistry*

R. L. STEHLE, PH.D.

B. M. HENDRIX, PH.D. } *Assistant Professors of Physiological Chemistry*

W. B. STONER, M.D. *Instructor in Chemistry*

FIRST YEAR

Hours

LECTURES. *Professor Taylor and Assistant Professors Stehle and Hendrix.*—Four times a week, first half year. 64

LABORATORY. *Professor Taylor, Assistant Professors Stehl and Hendrix.*—Two and a half hours, four times a week, first half-year. 160

RECITATIONS. *Assistant Professors Stehle and Hendrix.*—Four times a week, first half year. 64

Instruction in Physiological Chemistry is given during the first year of the medical course. Since all students enter the department with collegiate chemistry and physics, the work of the course in physiological chemistry is confined strictly to physiological chemistry. The course of instruction comprises a systematic survey of the field of physiological chemistry, particular attention being devoted to metabolism. The viewpoint of the course is physiology, interpreted from the modern concepts of physics and chemistry. Especial attention is paid to the instruction in analysis, in order that the future physician may be properly equipped to judge and to use approved physical and chemical methods in the investigation of morbid physiology.

The research laboratories of the department are open to workers qualified to undertake original investigations in physiological chemistry.

Graduate Work: Qualified students may elect physiological chemistry, in accordance with the regulations of the Graduate Council.

PHYSIOLOGY

HENRY CUTHBERT BAZETT, M.B., B.C.H.OXON., F.R.C.A.ENG.,

*Professor of Physiology*EDWARD LODHOLZ, M.D.....*Assistant Professor of Physiology*

JOSEPH F. ULMAN, M.D.....

ARTHUR B. LIGHT, M.D.....

JAMES W. ESLER, M.D.....

WILLIAM P. BELK, A.B., M.D.....

DRURY HINTON, M.D.....

GRAYSON P. MCCOUCH, M.D.....

Instructors in Physiology

Of the following courses in Physiology, I to VI, inclusive, are required of candidates for the degree of Doctor of Medicine. Courses VIII to XII are not required, but may be taken by students who have had satisfactory preparatory training.

SECOND YEAR

Hours

I and II. LECTURE. *Professor Lodholz*.—Four times a week..... 128III, IV, V and VI. LABORATORY. *Dr. Ulman and Assistants*.—

Three hours, twice a week..... 192

The instruction in Physiology embraces systematic courses of lectures, practical work by the student, demonstrations and conferences given during and extending throughout the second year. The students, therefore, before entering upon their work in this department, have been trained in Physiological Chemistry, Anatomy and Normal Histology.

I and II. LECTURES. On the general subject of Nutrition, from the last Monday in September to February 1st, and on the Heat Mechanism and the Nervous and Muscular Systems, from February 1st to the end of the session.

The lectures are copiously illustrated by tables, charts, diagrams and drawings, this being supplemented and considerably extended by the courses of instruction in the demonstration-room and laboratory.

III. STUDENTS' LABORATORY WORK, IN ILLUSTRATION AND EXTENSION OF COURSE I.

IV. STUDENTS' LABORATORY WORK, BEARING A SIMILAR RELATION TO COURSE II.

The course of practical work has been carefully and systematically planned, chiefly upon the *inductive* method of instruction, and seven and a half hours a week are assigned to each student for this work, together with demonstrations and conferences. The main objects sought in the laboratory are: the illustration of the lectures by the

most impressive methods; the supplementation of collateral work to further impress important fundamental facts and broaden their application; the training in the use of instruments of precision, with especial reference to the use of apparatus in clinical and experimental medicine; the cultivation of the individual's power of observation and deduction; the encouragement of accuracy of expression and method, of collateral work, and the co-ordination of facts.

The instruction in the practical work is given under the direction of the Professor of Physiology by the Assistant Professor and the Instructors. Each student is assigned a table and the necessary apparatus, and works under the direct supervision of the teaching staff. He is directed in technique and in what to observe, but he is self-dependent as to his results and conclusions, which he must present for examination in the form of "graphic records" and written records at the end of each exercise.

V and VI. DEMONSTRATION. *Drs. Ulman and Light.*—Two corresponding series of demonstrations, which take the place of practical work when the latter is of a character too difficult or otherwise undesirable for the student to pursue; as, for instance, work involving the use of complicated or very expensive apparatus, the employment of mammals, etc. These demonstrations are given in their proper relation to other instruction in physiology.

VIII. JOURNAL CLUB. Recent work in Physiology is reported by the members of the department, and by those actively engaged in research and advanced work in the laboratories.

IX. SEMINAR. Problems under investigation in the department are introduced for the mutual advantage of discussion. Conducted by the staff of the department.

X. GRADUATE COURSES. These courses are arranged to suit the requirements of those presenting themselves for the work. Rooms and apparatus are placed at the disposal of such students, and every facility is offered for the prosecution of research.

XI. ELECTIVE COURSES IN ADVANCED PHYSIOLOGY. These are offered to students of the third and fourth years in Medicine. The intention is to give to those who may desire it an opportunity to continue the laboratory work of the previous year in ways that are impossible with large classes, and as a foundation for the prosecution of research.

XII. RESEARCH. The laboratory offers all the advantages of its facilities and equipment for the investigation of problems in Physiology. This may be arranged for at any time by communicating with the Professor of Physiology.

PATHOLOGY

ALLEN J. SMITH, M.D.....	<i>Professor of Pathology</i>
JOSEPH MCFARLAND, M.D.....	<i>Professor of Pathology</i>
PAUL A. LEWIS, M.D.....	<i>Professor of Experimental Pathology</i>
BALDUIN H. LUCKE, M.D.....	<i>Instructor in Pathology</i>
S. P. REIMANN, M.D.....	<i>Instructor in Experimental Pathology</i>
HAROLD W. HOW, M.D.....	<i>Assistant Instructor in Pathology</i>
JOHN EIMAN, M.D.....	<i>Assistant Instructor in Pathology</i>
MORTON MCCUTCHEON, M.D.....	<i>Assistant Instructor in Pathology</i>
ERWIN F. FABER.....	<i>Instructor in Drawing</i>

SURGICAL PATHOLOGY

JOHN SPEESE, M.D.

Instructor in Surgery and Associate in Surgical Pathology

HENRY P. BROWN, JR., M.D.....	} <i>Assistant Instructors in Surgical Pathology</i>
NORMAN S. ROTHSCHILD, M.D...	

NEUROPATHOLOGY

WILLIAM G. SPILLER, M.D.....	<i>Professor of Neurology</i>
S. D. LUDLUM, M.D.....	} <i>Associates in Neuropathology</i>
WILLIAMS B. CADWALDER, M.D.....	
GEORGE WILSON, M.D.....	} <i>Instructors in Neuropathology</i>
JOSEPH MCIVER, M.D.....	

GYNECOLOGIC PATHOLOGY

JOHN G. CLARK, M.D.....	<i>Professor of Gynecology</i>
CHARLES C. NORRIS, M.D.....	<i>Assistant in Gynecological Pathology</i>

OPHTHALMIC PATHOLOGY

GEORGE E. DE SCHWEINITZ, M.D.....	<i>Professor of Ophthalmology</i>
.....	<i>Assistant in Ophthalmic Pathology</i>

Instruction in Pathology extends over the second, third and fourth years of the medical curriculum. The plan of instruction embraces a general course in pathology under the direct supervision of the chair of pathology, and a group of courses of applied special pathology, limited to the third or fourth year, in charge of the staff of instructors of the clinical branches concerned. In this latter group, which looks eventually toward the presentation of all special applications advantageously taught by laboratory methods, there have thus far been organized laboratories of Surgical Pathology, Neuropathology, Gynecologic Pathology and Ophthalmic Pathology. In each division of the

subject, except the last named, the plan of teaching includes systematic lectures, demonstrations and practical class exercises.

The general instruction in pathology includes the following courses, of which I to IX, inclusive, are required of candidates for the degree of Doctor of Medicine:

SECOND YEAR

Hours

- | | |
|---|-----|
| I. LECTURES. <i>Professor McFarland</i> .—Four times a week for sixteen weeks on general pathology..... | 64 |
| II. LECTURES. <i>Professor Smith</i> .—Two hours a week for sixteen weeks, on systemic pathology and animal parasitology... | 32 |
| III. DEMONSTRATIONS AND CONFERENCES. <i>Professor Smith</i> .—One hour, once a week, for thirty-two weeks..... | 32 |
| IV. LABORATORY. <i>Pathological Staff</i> .—Three hours, twice a week..... | 192 |

THIRD YEAR

- | | |
|---|----|
| V. LECTURES. <i>Professor Smith</i> .—Two hours a week on systemic pathology..... | 64 |
| VI. DEMONSTRATIONS IN GROSS MORBID ANATOMY. <i>Pathological Staff</i> .—Two hours, once a week..... | 64 |
| VII. AUTOPSIES. Each student must, by the State Law, attend at least six, but as a matter of fact each student attends from fifteen to twenty. In small sections. | |
| VIII. NEUROPATHY. <i>Professor Spiller and Drs. Ludlum, Leopold and Cadwalader</i> .—In sections. Two hours a week, once a week, for eight weeks, for each student..... | 16 |
| IX. CLINICAL PATHOLOGY. See under Medicine. | |
| X. DEMONSTRATIONS IN SURGICAL PATHOLOGY. <i>Dr. Speese and Assistants</i> .—In sections. Two hours, once a week, for ten weeks, for each student..... | 20 |

FOURTH YEAR

- | | |
|---|--|
| XI. ADVANCED WORK. | |
| XII. GYNECOLOGIC PATHOLOGY. <i>Dr. C. C. Norris</i> . | |
| XIII. OPHTHALMIC PATHOLOGY. | |

Courses I, II, III, IV and V are devoted to the various retrograde and progressive elementary pathological processes, to regeneration, inflammation, the specific inflammations, tumor formation and to teratology. In the laboratory of pathological histology, each student devotes two periods of three hours each week to the study of illustrative tissues by the microscope, the gross features of the processes

SCHOOL OF MEDICINE

discussed being correlated by frequent demonstrations of material in the laboratory or in lectures. The projection microscope is employed as an additional means of demonstration of the histological preparations, the essential features of each lesion being pointed out upon the screen to the student at the beginning of the study period.

Instruction in the special pathology of the various organs, with particular reference to the pathological physiology of each and the development of symptoms of disease, is taken up systematically in lectures in the second half of the second year and continued through the third year. This is preceded by a lecture and demonstrative course upon animal parasitology. In the laboratory of pathological histology the minute changes of the more important diseases of each organ are studied in as close relation as possible with the lecture instruction. At the same time brief demonstrations of the gross appearances of the diseased organs are made; and whenever profitable experimental work is introduced for the elucidation of special problems. A brief course, largely demonstrative and individual, upon the principles of immunity and serum diagnosis is included in this course.

In Course VI during the third year each student studies the accumulated autopsy material and especially selected and museum preparations, systematically and by the "case" method.

In Course VII the class is divided into small sections, and as autopsies are being performed in the University Hospital and Philadelphia General Hospital, the students are required to attend, and participate in the work. In the fourth year the students of the various ward classes in the University Hospital attend the autopsies upon those subjects with whose clinical course each class has been familiar in the wards; special instruction, attempting to correlate the pathological findings with the known symptoms of the case in life, being given. Opportunity for the completion of such investigation by histological and bacteriological methods is afforded the student in the laboratories of the department.

VIII. NEUROPATHOLOGY. See also Neurology.

IX. CLINICAL PATHOLOGY. See under Medicine.

X. SURGICAL PATHOLOGY. See also Surgery.

Dr. Speese.—Demonstrations of charts, gross specimens and microscopic specimens. This course is supplemental to Dr. Müller's lectures, and aims to present specimens illustrative of the principal surgical diseases. The following subjects are among those demonstrated: repair of wounds, suppuration, abscess, gangrene, ulcer, fistula, sinus, diseases of the thyroid, salivary and mammary glands; repair after fracture, dis-

eases of bones, joints, ligaments, bursæ; disease of the digestive tract, including the lip, tongue, stomach, gall bladder, liver, pancreas, intestine, appendix and rectum; diseases of the kidney, ureter, bladder, prostate, penis, scrotum and testicle; tumors about the jaw, connective tissue tumors, epithelial skin tumors; diseases of the lymphatic system.

XI. ADVANCED WORK. With the increased space and added facilities afforded by the McManes Laboratory of Pathology the department offers to advanced and post-graduate students special instruction in experimental pathology, immunology and serum diagnosis, animal parasitology, pathological histology, museum and autopsy work; and opportunity is afforded those suitably trained to undertake special investigation.

In addition to the above, work is presented by the various clinical groups in the special departments of the McManes Laboratory of Pathology (the Courses XII and XIII are not given to undergraduate classes except in small groups optionally).

PHARMACOLOGY

ALFRED N. RICHARDS, PH.D. *Professor of Pharmacology*

HORATIO C. WOOD, JR., M.D. *Professor of Pharmacology and Therapeutics*

WALTER L. MENDENHALL, M.D. *Assistant Professor of Pharmacology*

ARTHUR H. HOPKINS, M.D. *Instructor in Practical Therapeutics*

CARL F. SCHMIDT, M.D. *Instructor in Pharmacology*

Instruction in pharmacology is given during the second and third years and is required of all candidates for the degree of Doctor of Medicine.

SECOND YEAR

Hours

LECTURES. *Professors Richards, Mendenhall and Dr. Schmidt.*—

Twice a week. 64

CONFERENCES. *Professor Mendenhall and Dr. Schmidt.*—In sections. Once a week, for each student. 32

LABORATORY COURSE IN MATERIA MEDICA AND PHARMACY. *Professors Richards, Mendenhall and Dr. Schmidt.*—In sections. Three hours, twice a week, for ten weeks, November 4 to January 22, for each student. 60

LABORATORY COURSE IN PHARMACOLOGY. *Professor Richards, Mendenhall and Dr. Schmidt.*—In sections. Three hours, once a week, second half year, for each student. 48

THIRD YEAR

Hours

PRACTICAL THERAPEUTICS. *Dr. Hopkins.*—In sections. One hour, once a week during first half year; two hours, once a week, during second half year, for each student. 48

SECOND YEAR. In the lectures the physiological action of the important drugs is systematically considered, emphasis being laid upon those features in action which are of importance in relation to therapeutic use or toxicological effect.

The conferences are devoted to informal discussion of the subjects studied in lectures and text-book.

The laboratory work of the first half year includes the practical study of the general physical and chemical properties of the active constituents of drugs; practice in pharmaceutical methods of manufacture, at least one sample of each type of pharmacopœial preparations being made by each student; the study of incompatibilities and of prescription compounding. Together with this work in the laboratory the subject of prescription writing is taken up, the student being required to write each week a number of prescriptions, including substances and preparations already studied in the laboratory. A portion of each laboratory period is devoted to criticism of these prescriptions with demonstrations.

The laboratory work of the second half year is devoted to the practical study of drug action. Each section of the class is subdivided into groups of two, three or four students as occasion demands, and each of these smaller groups, under adequate supervision, performs experiments which demonstrate the action exerted by drugs upon the important physiological mechanisms—nervous system, respiration, circulation, kidney, gastro-intestinal tract, etc. Important experiments which cannot be successfully performed by students are shown in demonstration.

THIRD YEAR. PRACTICAL THERAPEUTICS. In this course pharmacology is studied in relation to definite problems in the treatment of disease. Cases from the medical wards of the University Hospital are presented in clinic, the important features in the history and physical examination are briefly discussed and the student is required to plan drug treatment based, in so far as possible, upon the known action of the drugs which might be chosen and the nature of the conditions to be treated, and to write the prescriptions and instructions covering it. These outlines and prescriptions are critically discussed in the light of the results of the treatment which was actually applied, and from time to time, the cases again are brought before the class for further observation and discussion as to progress and modification of treatment.

FOURTH YEAR. An elective course is offered by Professor H. C.

Wood, Jr., on treatment of inflammations of mucous membranes, including practical management of certain common diseases, together with experience in prescription writing.

RESEARCH. The research laboratories of the department are open to a limited number of qualified workers. Research in pharmacology may be chosen by students of the fourth year in fulfillment of the elective requirements of that year.

TOXICOLOGY

JOHN MARSHALL, M.D.....	<i>Professor of Chemistry and Toxicology</i>
LEON A. RYAN, PH.D.....	<i>Assistant Professor of Chemistry and Toxicology</i>
HENRY E. STARR, B.S.....	<i>Instructor in Chemistry and Toxicology</i>

SECOND YEAR

Hours

LECTURES. <i>Professor Marshall.</i> —Once a week, second half year	16
LABORATORY. <i>Professor Marshall, Assistant Professor Ryan and Mr. Starr.</i> —Two and a half hours, once a week, second half year.....	40

The laboratory course includes principally the application of qualitative chemical tests to individual poisons and also their separation and identification, from foodstuffs and animal tissues. The identification of blood stains on fabrics, etc., is also part of the course. Especial attention is devoted to the medico-legal aspects of the subject.

MEDICINE

ALFRED STENGEL, M.D., SC.D.....	<i>Professor of Medicine</i>
DAVID RIESMAN, M.D.....	<i>Professor of Clinical Medicine</i>
JOSEPH SAILER, M.D.....	<i>Professor of Clinical Medicine.</i>
M. HOWARD FUSSELL, M.D.....	<i>Professor of Applied Therapeutics</i>
GEORGE W. NORRIS, M.D.....	<i>Assistant Professor of Medicine</i>
H. R. M. LANDIS, M.D.....	<i>Assistant Professor of Medicine</i>
O. H. PERRY PEPPER, M.D.....	<i>Assistant Professor of Medicine</i>
JOHN H. MUSSER, JR., M.D.....	<i>Assistant Professor of Medicine</i>
ARTHUR A. STEVENS, M.D.....	<i>Lecturer on Medicine</i>
HERBERT FOX, M.D.....	<i>Lecturer on Medicine</i>

GEORGE MORRIS PIERSOL, M.D....	}	<i>Associates of Medicine</i>
ROBERT G. TORREY, M.D.....		
THOMAS C. KELLY, M.D.....		
T. GRIER MILLER, M.D.....		
ARTHUR H. HOPKINS, M.D.....		
L. NAPOLEON BOSTON, M.D.....		
THOMAS A. COPE, M.D.....		
CHARLES C. WOLFERTH, M.D.....		
JOHN M. CRUICE, M.D.....	}	<i>Instructors in Medicine</i>
FRANK A. CRAIG, M.D.....		
WARD BRINTON, M.D.....		
TRUMAN G. SCHNABEL, M.D.....		
JAMES A. SMITH, M.D.....		
ISADORE KAUFMAN, M.D.....		
RICHARD KERN, M.D.....		
THOMAS KLEIN, M.D.....		
ANDREW CALLAHAN, M.D.....		
J. HOWARD SMITH, M.D.....		
J. C. DOANE, M.D.....		
BENJAMIN M. MCINTIRE, M. D....		
OLIVER K. REED, M.D.....		
WILLIAM STROUD, M.D.....		
SIMON S. LEOPOLD, M.D.....		<i>Instructor in Clinical Pathology</i>
H. B. WILMER, M.D.....	}	<i>Assistant Instructors in Medicine</i>
GEORGE WILSON, M. D.....		
DAVID L. FARLEY, M.D.....		
ARTHUR W. PHILLIPS, M.D.....		
SAMUEL H. KOHLMAN, M.D.....		
WILLIAM HEWSON, M. D.....		
MARION REA, M. D.....		
THOMAS M. MACMILLAN, M.D....		
FRANK W. BURGE, M.D.....		

SECOND YEAR

Hours

LECTURES AND DEMONSTRATIONS ON PHYSICAL DIAGNOSIS. <i>Assistant Professor Landis</i> .—Once a week, second half year.....	16
PRACTICAL WORK IN PHYSICAL DIAGNOSIS. <i>Assistant Professor Landis and Assistants</i> .—In sections. Two hours a week, for second half year, for each student.....	32

THIRD YEAR

Hours

LECTURES. <i>Professor Stengel</i> .—To third and fourth year classes combined. Once a week.....	32
CLINICAL LECTURES. <i>Professor Stengel</i> .—Once a week.....	32
OBSERVATION CLASSES. <i>Dr. Stevens</i> .—Once a week, first half year..	16
PRACTICAL WORK IN MEDICAL DISPENSARY. <i>Assistant Professor Musser and Assistants</i> .—In sections. For each student.....	120
MEDICAL TECHNIC. One hour a week for second half year.....	16
LECTURES ON APPLIED THERAPEUTICS. <i>Professor Fussell</i> .—Twice a week.....	64
MEDICAL CLINICS. <i>Assistant Professors Landis and O. H. P. Pepper</i> .—Each once a week.....	32
WARD WORK IN TUBERCULOSIS. <i>Assistant Professor Landis and Assistants</i> .—Phipps Institute.....	16
PHILADELPHIA HOSPITAL. <i>Dr. Stevens and Assistants</i>	16
LECTURES ON CLINICAL PATHOLOGY. <i>Dr. Cope</i> .—Once a week..	32
LABORATORY COURSE IN CLINICAL PATHOLOGY. <i>Dr. Cope and Assistants</i> .—In sections. Two hours a week for each student	64
EXTRAMURAL CLINICS. Philadelphia General and Pennsylvania Hospitals on Saturday mornings.	

FOURTH YEAR

LECTURES. <i>Professor Stengel</i> .—To third and fourth year classes combined. Once a week.....	32
CLINICAL CONFERENCES. <i>Professors Stengel, Riesman and Sailer</i> .—Three times a week.....	112
WARD CLASSES. <i>Dr. Stevens</i> .—Philadelphia General Hospital. In sections. For three weeks, for each student.....	8
WARD WORK. <i>Assistant Professor O. H. P. Pepper, Drs. Miller and Wolferth</i> . University Hospital. In sections. For five weeks, for each student.....	140
WARD WORK. <i>Professors Riesman and Sailer</i> .—Philadelphia General Hospital. For five weeks, for each student.....	75
APPLIED THERAPEUTICS. <i>Professor Fussell</i> . In sections. Once a week, for five weeks, for each student.....	10

OUTLINE

SECOND YEAR

PHYSICAL DIAGNOSIS.—*Assistant Professor Landis* gives lectures and demonstrations on physical diagnosis during the second half of the year. These are devoted to an exposition of the general principles of

the subject rather than to a study of the physical signs in special diseases. In addition to the lectures, each student has practical work under Dr. Landis and his assistants, the class being divided into small sections. These classes are devoted almost entirely to normal conditions, the signs of disease being used only as an occasional contrast to the normal, the actual study of signs of special diseases being carried out in the third year.

THIRD YEAR

SYSTEMATIC LECTURES.—*Professor Stengel* lectures to the third and fourth year classes combined, once a week. These lectures are intended as a general exposition of the relations of the fundamental sciences to practical medicine with a sufficient systematic description of diseases to furnish a basis for further study. In addition to the lectures, topics for reading are assigned, so that the student may be guided in his work.

CLINICAL LECTURE.—*Professor Stengel* also conducts for the third-year class once a week, a medical clinic illustrating the topics discussed in the general lecture.

OBSERVATION CLASSES.—*Dr. Stevens* conducts these classes, with the special purpose of training the student's powers of observation in recognizing the meaning of the objective signs of disease.

MEDICAL DISPENSARY.—The class is divided into small sections and assigned to the Instructors in the Medical Dispensary.—*Assistant Professor Musser and his Assistants.* The students take histories of new cases, make physical examinations and assist in the work of the Dispensary. Demonstrations of selected cases are made by the Instructors and various methods of clinical investigation are carried out with the assistance of the students.

One hour each week the whole class meets Dr. Musser in the Medical Clinic for special demonstrations designed to aid them in their individual work just described.

Besides the regular work, many students avail themselves of the opportunities offered to act as clerks in the Dispensary of the University Hospital throughout the year, and in the same place or elsewhere during vacations.

APPLIED THERAPEUTICS.—*Professor Fussell* lectures with illustrative cases as the basis of discussion on methods of treatment. All forms of medical and non-medical therapeutics are discussed and as far as possible demonstrated before the students.

MEDICAL CLINICS.—*Asst. Profs. Landis and O. H. P. Pepper* conduct clinics at the University Hospital. These are designed to advance the clinical experience of the students after the systematic lectures and dispensary work have prepared them for further clinical work.

TUBERCULOSIS.—*Assistant Professor Landis and Assistants* meet one section (one-quarter) of the class at the Phipps Institute for practical instruction in the diagnosis and treatment of tuberculosis.

CLINICAL LABORATORY COURSE.—*Dr. Thos. A. Cope* gives a lecture and demonstration, and conducts the laboratory exercises. In these the class is divided into sections, each section receiving instruction and practice in the methods of chemical and microscopical examination of the urine, blood, sputum, stomach contents, feces, etc.

FOURTH YEAR

SYSTEMATIC LECTURES. (See Third Year.)

CLINICAL CONFERENCES.—*Professors Stengel, Riesman and Sailer* take up, in a systematically subdivided course, the discussion of all the important medical conditions, so that the whole subject may be illustrated so far as this is feasible—contagious diseases and others that do not occur in this region being, of course, excepted.

In these conferences, held both in the University and the Philadelphia Hospitals, students who have studied the cases in the wards are called to the bedside before the class and discuss the cases with the lecturer, and at times contribute short papers on specially assigned subjects.

In all the above classes the students in charge of the case are required to report completely on the case in hand, including the history and general examination and any desirable clinical laboratory findings, the examination of the blood and urine being always required.

The conferences deal especially with questions of diagnosis or treatment.

WARD CLASSES.—*Dr. Stevens and Assistants* meet sections twice weekly at the Philadelphia Hospital in advanced ward classes which deal especially with differential diagnosis and treatment.

WARD WORK. The medical ward work is arranged in periods of five weeks' continuous service in the medical wards at the University Hospital or the Pennsylvania Hospital and five weeks at the Philadelphia Hospital.

Professor Fussell meets small sections for bedside discussion of practical therapeutics.

At the University Hospital there are regular ward rounds on four days of the week by Professor Stengel and Assistant Professor O. H. P. Pepper, Drs. Miller and Wolferth, at the Philadelphia Hospital by Professors Riesman and Sailer and at the Pennsylvania Hospital by Professor G. W. Norris. Some or all of these teachers and additional assistants are in the wards practically all of each morning, and the students are thus under supervision constantly, and advice is always

at hand; but their work is done by themselves and at the ward rounds reports are made to the instructor of the nature, progress, etc., of each case by the student assigned to it, each student having several cases under his care. The group have opportunity to see all special kinds of treatment practiced in the ward and to follow, and to some extent to suggest, the treatment of the cases under observation. Once a week Professor Stengel and the entire Staff at the University Hospital meet the students of the group working there in a Seminar for the discussion of important topics or specially interesting clinical cases.

Each student thus gets three months' experience in the medical wards, working three to five hours daily, which is comparable to that of a hospital interne, with the addition of constant aid and advice from senior instructors.

LABORATORY WORK. Each student of the fourth-year class is supplied with a working place in the Clinical Laboratory, which is immediately adjacent to the hospital wards, where he is furnished with a locker containing all necessary apparatus. He is required to make routine examinations, in which assistance is available when needed, of all material from patients assigned to him in any of the departments during his final year. The laboratory is open at all times during the day, and the student has access to his working place at any leisure time for such work. or for any other laboratory work that he may desire to carry out.

OTHER EXTRAMURAL TEACHING. The roster is arranged so that the students of the third-year class are free to attend the medical clinics at the Pennsylvania or Philadelphia Hospitals on Saturdays. Other medical clinics may also be attended by the members of the same class, and volunteer work in connection with various other hospitals is easily secured, particularly during vacation.

CLINICO-PATHOLOGICAL DEMONSTRATIONS. All autopsies held at the University Hospital will be attended by the students on duty in the ward in which the case under examination occurred. The pathologist conducts the autopsy, the clinicians in charge of the case first explaining the clinical aspects of the condition.

PEDIATRICS

J. P. CROZER GRIFFITH, M.D.....	<i>Professor of Pediatrics</i>
THOMPSON S. WESTCOTT, M.D.....	} <i>Associates in Pediatrics</i>
MAURICE OSTHEIMER, M.D.....	
CHARLES A. FIFE, M.D.....	
HOWARD C. CARPENTER, M.D.....	
J. CLAXTON GITTINGS, M.D.....	

A. GRAEME MITCHELL, M.D.....	} <i>Instructors in Pediatrics</i>
WILLIAM N. BRADLEY, M.D.....	
JOHN D. DONNELLY, M.D.....	
CHARLES J. COLE, M.D.....	

THIRD YEAR

Hours

LECTURES. <i>Professor Griffith</i> .—Once a week for first half year..	16
LECTURES. <i>Drs. Ostheimer, Fife, Carpenter and Gittings</i> .—Once a week for second half year.....	16

FOURTH YEAR

LECTURES. <i>Professor Griffith</i> .—Once a week.....	32
WARD CLASSES AND DISPENSARY WORK. <i>Drs. Ostheimer, Fife, Carpenter, Mitchell and Bradley</i> .—In sections. Five times a week, for each student.....	15
WARD WORK. <i>Drs. Fife, Carpenter and Gittings</i> .—In sections. Two hours a week, for five weeks, for each student.....	10

The course in Pediatrics consists of lectures, ward classes and ward work in the University Hospital, the Children's Hospital and the Philadelphia Hospital.

The lectures are conducted by the Professor of Pediatrics in the medical amphitheatre of the University Hospital once a week. Special lectures are given upon the general diagnosis, symptomatology and treatment of disease in children. The more important subjects receive systematic and full discussion, and an effort is made so to select these that the instruction by the assistant teachers will not be unnecessarily duplicated. By this arrangement as great a number of topics as possible is considered during the course. The feeding of infants receives especial attention. In addition to this, the Children's Ward and Dispensary are drawn upon for clinical lectures on the various diseases presenting themselves.

The ward classes are conducted at the University Hospital by Dr. Ostheimer, at the Children's Hospital by Drs. Carpenter, Gittings, Mitchell, Donnelly and Cole, and at the Philadelphia Hospital by Drs. Fife and Bradley. Subsections of the class, consisting of from eight to fifteen students, attend these ward classes five times a week and have the opportunity of examining the patients under the direction of the instructor, and in addition learn the practical management of the diseases of children as conducted in the Hospital wards. In addition to the work mentioned, the students, in small groups, are assigned personal supervision of certain cases in the wards in the University Hosp

tal, making daily observations of them and attending the ward visits of the assistant pediatric physicians, Drs. Ostheimer, Gittings, Fife and Carpenter.

PHYSICAL THERAPY

R. TAIT MCKENZIE, B.A., M.D.....*Professor of Physical Therapy*

Instruction in this subject consists of a course of lectures upon the application of massage, muscular re-education, electricity, hydrotherapy, heat and light, in the treatment of disease.

These lectures begin in November and are given twice a week during the term at the Medical laboratories or the University Hospital to members of the second-year class.

The practical work and demonstrations are given in the Department of Physical Therapy in the University Hospital.

SECOND YEAR

Hours

LECTURES AND DEMONSTRATIONS ON PHYSICAL THERAPY. *Professor*

McKenzie.—One hour, twice a week, for twelve weeks..... 24

DEMONSTRATIONS ON ELECTROTHERAPY. *Dr. Wm. T. Johnson*.—

Included in the above twenty-four hours.

DEMONSTRATIONS ON HYDROTHERAPY AND THERMOTHERAPY. *Dr.*

Josef B. Nylin.—In sections. Six hours for each student included in above twenty-four hours.

SURGERY

JOHN B. DEAVER, M.D.....JOHN RHEA BARTON *Professor of Surgery*

CHARLES H. FRAZIER, M.D.....*Professor of Clinical Surgery*

HENRY K. PANCOAST, M.D.....*Professor of Roentgenology*

J. EDWIN SWEET, M. D.....*Professor of Surgical Research*

ALFRED C. WOOD, M. D.....*Assistant Professor of Surgery.*

JOHN B. CARNETT, M.D.....

JOHN H. JOPSON, M. D.....

GEORGE P. MÜLLER, M.D.....

T. TURNER THOMAS, M.D.....

ELDRIDGE L. ELIASON, M.D.....

GEORGE G. ROSS, M.D.....

DAMON B. PFEIFFER, M.D.....

A. P. C. ASHHURST, M.D.....

GEORGE M. LAWS, M.D.....

A. D. WHITING, M.D.....

Associates in Surgery.

JOHN SPEESE, M.D.....	}	<i>Instructors in Surgery.</i>
THOMSON F. EDWARDS, M.D.....		
H. P. BROWN, M. D.....		
DAVID HUSTON, M.D.....		
ISADOR RAVDIN, M. D.....		
CALVIN M. SMYTH, M. D.....	}	<i>Assistant Instructors in Surgery</i>
EDWARD T. CROSSAN, M.D.....		
DRURY HINTON, M.D.....		
RALPH GOLDSMITH, M.D.....		
SAMUEL STURGIS, M.D.....		

SECOND YEAR

Hours

SURGICAL THERAPEUSIS (non-operative). <i>Dr. Whiting.</i> —Once a week.....	32
BANDAGING, EMERGENCY TREATMENT, ELEMENTARY FRACTURE DRESSING. <i>Drs. Ravdin, Smyth and Hinton.</i> —In sections. Second half year. Two hours a week for each student.....	32

THIRD YEAR

LECTURE. <i>Prof. Deaver.</i> —Once a week.....	32
LECTURE ON ROENTGENOLOGY. <i>Professor Pancoast.</i> —Once a week.....	32
LECTURE. <i>Asst. Prof. Wood.</i> —Once a week half the year.....	16
LECTURE. <i>Dr. Müller.</i> —Once a week.....	32
NON-OPERATIVE CLINIC. <i>Dr. Ross.</i> —Once a week.....	32
MINOR SURGERY AND FRACTURE CLINICS. <i>Dr. Eliason.</i> One-fourth year for each student.....	16
SURGICAL DISPENSARY. <i>Dr. Laws, assisted by Drs. Huston, Edwards, Goldsmith and Sturgis.</i> —In sections. For each student.....	38
APPLIED SURGICAL ANATOMY.—See under <i>Anatomy.</i>	
SURGICAL PATHOLOGY.—See under <i>Pathology.</i>	

FOURTH YEAR

LECTURE. <i>Professor Deaver.</i> —Once a week.....	32
OPERATIVE CLINIC. <i>Professor Deaver.</i> Lankenau Hospital.—In sections. One-third of class, two hours once a week, for each student.....	20
<i>Prof. Deaver.</i> University Hospital.—In sections. One-third of class, two hours once a week, for each student.....	20
CLINICAL LECTURE AND OPERATIVE CLINIC. <i>Professor Deaver.</i> —Entire class. One hour, once a week, for each student.....	32

	Hours
WARD CLASSES AND WARD WORK. <i>Professors Deaver and Frazier, Asst. Prof. Wood; Drs. Thomas, Carnet, Muller, Ross, Pfeiffer, Ravdin, Smyth and Hinton.</i> —In sections. Five hours a week, for each student.....	50
CLINICAL CONFERENCES AND OPERATIVE CLINICS. <i>Professor Frazier, Asst. Prof. Wood; Drs. Thomas, Muller, Pfeiffer.</i> —In sections, one-third of class. Five periods of two hours each, for each student.....	100
CLINICAL CONFERENCES AND OPERATIVE CLINICS. <i>Drs. Carnett and Ross.</i> —In sections. Two periods of one hour each, for each student.....	20
MILITARY SURGERY. <i>Dr. Jopson.</i> —Second half year, one hour a week.....	16
OPERATIVE SURGERY. <i>Dr. Ashhurst, assisted by Drs. Brown and Crossan.</i> —Two hours twice a week for ten weeks. For each student.....	40

The course in surgery begins in the latter half of the second year and extends throughout the third and fourth years. The fundamentals of the subject are taught by a combination of lectures, demonstrations and conferences, while the essentially practical object of surgery is recognized by bringing the student into the closest possible relation to the patient in the dispensaries and wards of the hospital. The course is graduated, beginning in the second year with the simplest methods of mechanical treatment and the application of the fundamental sciences to surgery, then passing to a systematic study of the principles of surgery, illustrated by demonstration and discussion of concrete cases in the wards, while simultaneously in sections and under the immediate supervision of instructors, the student himself takes histories, examines, diagnoses and treats patients in the dispensaries. He learns the technic and performs representative operations on the cadaver. He observes and, in so far as material is available, assists in minor operations. In the fourth year the teaching of surgery is concentrated in such a way that one-third of the class is occupied almost exclusively with this subject for one-third of the school year and for a part of the time during the remaining two-thirds. The teaching is almost entirely carried on in the University Hospital, where the clinical material is sufficiently abundant to provide all that can be well assimilated by the student. Also, material that differs somewhat in character and range is utilized in the wards of the Philadelphia General Hospital, which is adjacent. By this method it is possible for the student, during the surgical trimester, to observe the patients before operation or other surgical treat-

ment, to witness the treatment in the hands of his teachers, to see the after treatment and results and to examine tissues and specimens removed which are made the subject of demonstrations in surgical pathology.

Each student receives instruction and personal experience in anesthesia. The department of surgical research affords opportunity for instruction in experimental work, and a limited number of men engage in definite research under the direction of the Professor of Surgical Research.

SURGICAL ANTISEPSIS AND ASEPSIS, NON-OPERATIVE THERAPEUTICS.

Dr. Whiting.—One hour a week throughout the year. History of antiseptics and asepsis; a study of the main sources of infection in operative wounds; the classes of agents used in procuring asepsis and antiseptics; the uses and abuses of the various chemical agents; methods for cleansing the hands; field of operation; and the preparation of materials, etc.

BANDAGING, FRACTURE DRESSINGS AND FIRST-AID. *Drs. Ravdin, Smyth and Hinton.*—Two hours a week for half the year. The various bandages and fracture dressings are demonstrated and the students apply them to ambulatory patients in the University Hospital. The first-aid treatment of hemorrhage, shock, fracture, burns, and poisons are demonstrated whenever the material in the hospital presents itself.

PRINCIPLES OF SURGERY. *Dr. Müller.*—One hour a week throughout the year. The subjects of hemorrhage and shock, the general principles of infection, specific and non-specific infections, tumors, and the principles of regional surgery are covered.

LECTURES AND DEMONSTRATIONS. *Dr. Wood.*—One hour once a week the second half-year. Diseases of bones and joints; surgery of the extremities; amputations, etc. Anesthesia.

MINOR SURGERY. *Dr. Eliason.*—Minor surgical conditions and the application of surgical principles in the treatment. Students assist in the reduction of fractures, opening abscesses, dressing wounds, etc.

NON-OPERATIVE CLINIC. *Dr. Ross.*—One hour a week throughout the year. Patients in the surgical wards of the University Hospital are demonstrated to the class. Diagnosis, pre- and post-operative treatment and complications are discussed. Wherever possible the students come down and individually examine the lesion.

DISPENSARY SERVICE, SURGICAL DISPENSARY. *Dr. Laws, assisted by Drs. Huston, Edwards, Goldsmith and Sturgis.*—Thirty-eight hour

during the third year. Under supervision the last half hour of each day is spent in a discussion of the new and interesting cases seen that day.

OPERATIVE SURGERY. *Dr. Ashhurst, assisted by Drs. Brown and Crossan.*

Forty hours during the year. The subjects covered are as follows:

1. Instruments; incisions; ligatures; knots; sutures; methods of local anesthesia; ligation of arteries.
2. Intravenous infusion; axillary infusion; hypodermoclysis; intubation of larynx; tracheotomy.
3. Surgical anatomy of limbs: location of nerves; tenotomy; tendon lengthening. Lacerated wounds: suture of muscle, tendon, and nerve; thoracotomy.
4. Amputations in general; amputation of fingers, toes, foot, leg, forearm.
5. Amputations of leg, knee, thigh, hip, elbow, arm, shoulder; endbearing stumps; cinematoplastic amputations.
6. Abdominal wall; abdominal incisions. Hernia: inguinal, femoral, umbilical.
7. Intestinal localization; appendicitis; intestinal suture and anastomosis.
8. Gastrostomy; gastro-jejunostomy; cholecystotomy; cholecystectomy; choledochotomy; colostomy.
9. Cranio-cerebral topography; fractures of skull; trephining; middle meningeal hemorrhage; peripheral operations for trifacial neuralgia.
10. Nephrotomy; nephrectomy; mastoid operation; laminectomy; lumbar spine puncture.
11. Operations on tumors; carcinoma of lip and tongue; carcinoma of breast.
12. Hemorrhoids; fistula in ano; circumcision; varicocele; castration.
13. Urethral sounds and catheters; suprapubic cystotomy, and prostatectomy; external perineal urethrotomy with a guide (Symes operation); external perineal urethrotomy without a guide ("perineal section"); tapping urethra at apex of prostate (Cock's operation); perineal prostatectomy.
14. Thyroid operations: ligation; lobectomy; excisions of elbow, knee, shoulder.
15. Examination.

LECTURES IN GENERAL SURGERY. *Dr. Deaver.*—One hour weekly to each of the third and fourth year classes throughout the year. The subject is covered systematically, and wherever possible lantern slide demonstrations are given to illustrate the subject.

WARD WORK AND OPERATIVE CLINICS. *Drs. Deaver, Frazier, Wood, Carnett, Müller, Thomas, Ross and Pfeiffer.*

Daily during the surgical trimester in the fourth year, one hour or more is devoted to instruction by groups of not exceeding ten students. Histories are taken and laboratory examinations made upon new cases as assigned. Cases are reviewed and discussed in the wards. Dressings are done at this time and are made the subject of demonstration and critical consideration. Enteroclysis, venoclysis, hypodermoclysis, enemas, paracentesis, lavage and other ward activities are employed to familiarize the student with their technic and indications. Following the ward work the operations for the day are demonstrated to the entire group in informal clinic with suggested commentary on diagnosis and treatment. Occasional systematic discussions of important conditions are given. After a preliminary period of observation the student is required to give anesthetics in at least six cases under the supervision of the official anesthetists. All operative clinics are at the University Hospital with the exception of one weekly clinic in general surgery by Professor Deaver at the Lankenau Hospital.

In order to employ the clinical material to the best advantage, the operative work in the University Hospital has been assigned to the various members of the Staff by regions or fields. The present arrangement is as follows:

GENERAL SURGERY. *Dr. Deaver.*

HEAD, NECK, SPINE, NEUROLOGICAL AND GOITRE. *Dr. Frazier.*

DISEASES OF BONES AND JOINTS, BLOOD AND LYMPH VASCULAR SYSTEMS, AND MISCELLANEOUS. *Dr. Wood.*

HEAD (NON-NEUROLOGICAL), NECK, CHEST AND BREAST. *Dr. Müller.*

INDUSTRIAL SURGERY. *Dr. Carnett.*

FRACTURES (OPERATIVE) AND DISLOCATIONS. *Dr. Thomas.*

MINOR SURGERY AND FRACTURES. *Dr. Eliason.*

HERNIA. *Dr. Ross.*

ABDOMEN AND RECTUM. *Dr. Pfeiffer.*

AMBULATORY AND DISPENSARY SURGERY. *Dr. Laws.*

ORTHOPAEDIC SURGERY

A. BRUCE GILL, M.D.....*Professor of Orthopaedic Surgery*
 JAMES K. YOUNG, M.D.....*Associate Professor of Orthopaedic Surgery.*
 ALBERT F. MOXEY, M.D.....*Instructor in Orthopaedic Surgery*
 EDWARD T. CROSSAN, M.D.....*Assistant Instructor in Orthopaedic Surgery*

THIRD YEAR

Drs. GILL, MOXEY and CROSSAN.

During the second half of the third year a didactic lecture is given one hour weekly to the entire class. These lectures cover systematically the principles and practice of Orthopedic Surgery. The diseases and conditions which are dealt with are : tuberculosis of bones and joints, acute infections of bones other than tuberculous, the acute and chronic arthritides, infantile paralysis, spastic paralysis, congenital deformities and dislocations, static deformities of the extremities and the trunk, contractures, fractures adjacent to or involving joints, acute and chronic backache, together with other minor conditions.

During the entire year Ward Classes are conducted for small subsections of the Third Year Class two hours daily. In these classes the subject of Orthopedic Surgery is covered systematically. Students are taught to examine patients in a thorough and systematic manner, to arrive at the correct diagnosis, and to outline the treatment. Careful instruction is given in the use of plaster of paris and of apparatus.

FOURTH YEAR

Dr. GILL.

Four hours a week is offered to the Fourth Year students during their elective trimester. Two hours are devoted to the careful examination of patients selected from the ward or the orthopaedic dispensary in such a manner as to cover the most important features of orthopaedic surgery. The other two hours are given to operative orthopaedic surgery.

During the entire course to both Third and Fourth Year students attention is directed chiefly to those diseases and conditions which commonly occur in the practice of every physician. An effort is made to inculcate general principles of anatomy, physiology, pathology, and surgery as applied to the extremities and to the spinal column and not to attempt to make finished specialists of the students. Exact and thorough methods of examination of patients, the early recognition of disease, prevention of disability and deformity, or its early correction as far as possible, are emphasized over and over.

GENITO-URINARY SURGERY

THOMAS R. NEILSON, M.D.....	<i>Professor of Genito-Urinary Surgery</i>
E. HOLLINGSWORTH SITER, M.D....	} <i>Associates in Genito-Urinary Surgery</i>
W. H. MACKINNEY, M.D.....	
ALEXANDER RANDALL, M.D.....	
J. LEON HERMAN, M.D.....	} <i>Instructors in Genito-Urinary Surgery</i>
P. S. PELOUZE, M.D.....	
GEORGE P. PILLING, M.D.....	
STIRLING W. MOORHEAD, M.D....	
WILLIAM C. KESSLER, M.D.....	

THIRD YEAR

	Hours
DISPENSARY WORK. <i>Professor Neilson and Assistants.</i> —In sections, averaging for each student.....	38

FOURTH YEAR

LECTURES. <i>Professor Neilson.</i> —Once a week, first half year.....	16
WARD CLASSES. <i>Professor Neilson and Assistants.</i> —In sections. Two hours, twice a week, for ten weeks, for each student....	40

Small sections of the Third Year Class are assigned daily to the Genito-Urinary Dispensary for practical instruction.

A systematic course of lectures is given to the Fourth Year Class, covering the surgical diseases and injuries of the genito-urinary organs, including the venereal diseases.

Ward classes, Fourth Year, for which the class is divided into sections, are held throughout the year. The students are afforded excellent opportunity to become familiar with the methods of diagnosis and treatment of diseases of the genito-urinary apparatus by personal observation, and by practical work under the guidance of the teachers. House cases requiring operation are operated on by the professor or assistants before the class.

For elective work subsections of the class receive instruction from Drs. Mackinney, Herman, Randall and Pelouze in the Venereal Wards of the Philadelphia General Hospital or the Genito-Urinary Dispensary of the University Hospital. The rich and abundant material at hand offers to the student unsurpassed opportunities for observation and study.

GYNECOLOGY

JOHN G. CLARK, M.D.....	Professor of Gynecology.
BROOKE M. ANSPACH, M.D.....	Associates in Gynecology
CHARLES C. NORRIS, M.D.....	
FLOYD E. KEENE, M.D.....	
FRANK B. BLOCK, M.D.....	Instructors in Gynecology
THOMAS H. LLEWELLYN, M.D.....	
HENRY B. MIKELBERG	Assistant Instructors in Gynecology
CHARLES A. BEHNEY.....	

The instruction in Gynecology extends throughout the third and fourth years and comprehends:

THIRD YEAR

Hours

- I. RECITATION AND LANTERN DEMONSTRATIONS. *Professor Clark.*
 —Once a week..... 32

FOURTH YEAR

- II. CLINICAL WARD CLASSES. *Professor Clark and Drs. Anspach, Norris and Keene.*—In sections. Two hours, three times a week, for ten weeks, for each student..... 60
- III. CLINICAL CONFERENCE. *Drs. Norris and Keene.*—In sections. Once a week, for ten weeks, for each student..... 10
- IV. GYNECOLOGICAL PATHOLOGY. *Dr. Norris.*—This is an elective course for special students.
- V. GYNECOLOGICAL DIAGNOSIS. *Drs. Llewellyn and Block.*—Elective course for limited number of students in Gynecological Dispensary.

THIRD YEAR

I. RECITATIONS AND LANTERN DEMONSTRATIONS. Devoted either to recitations or to lantern demonstrations by Professor Clark. It is intended that the demonstrations shall fully supplement the recitations, thus rendering as clear as possible the histologic, anatomic, and pathologic, as well as the operative side of Gynecology. The third-year instruction is entirely theoretic, and is intended to prepare the student for his practical work of the fourth year.

FOURTH YEAR

II. CLINICAL WARD CLASSES. The class is divided into sections, which attend the clinical ward classes. These sections are further subdivided into small groups of students who see all cases with the professor or instructors before any plan of treatment is instituted. The history

of the case is carefully reviewed; and, instead of the usual clinical lecture preceding an operation, the special group of students for the day are closely quizzed on all points relative to diagnosis, treatment, and prognosis. Immediately after the operation, all points on the technique of the operation, the post-operative care of the patient, the possible complications, and the ultimate progress are fully considered.

III. CLINICAL CONFERENCE. During this Conference the clinical reporters for each ward class give in detail the histories of cases seen during the preceding week, with treatment and results. The instructor merely acts as a guide in these conferences, the students carrying the burden of the discussion.

IV. GYNECOLOGICAL PATHOLOGY. The Pathological Laboratory of the Gynecological Department will be placed at the disposal of elective students. A complete course in microscopic diagnosis will be offered. This will prove particularly valuable to those students, either undergraduate or postgraduate, who expect to take up the special study of the Diseases of Women.

V. GYNECOLOGICAL DIAGNOSIS. A limited number of students may elect this course. Comprehensive training in history taking, diagnosis, and treatment of ambulatory office cases will be given in the Gynecological Dispensary.

DERMATOLOGY

MILTON B. HARTZELL, A.M., M.D., LL.D., *Professor of Dermatology*
C. K. DENGLE, M.D. *Instructor in Dermatology*

THIRD YEAR

Hours

LECTURES. *Professor Hartzell*.—Once a week, throughout the year 32

CLINICS. *Professor Hartzell*.—Half the class, one hour, once a week,
throughout the year. 16

WARD INSTRUCTION. *Professor Hartzell and Assistants*.—In sections.
One hour, once a week, for ten weeks. 10

I. LECTURES. The subject-matter is descriptive of the commoner diseases of the skin as met with in this country. The lectures are abundantly illustrated by charts, paintings, photographs, lantern slides, and wax and paper-maché models.

II. CLINICS. Cases are exhibited and commented on in such a manner as to render the clinical features of the disease plain.

III. WARD INSTRUCTION. In the wards of the Philadelphia General Hospital and in the Skin Dispensary of the University Hospital, the students thus coming in contact with cases. This is also open to the fourth-year class as an elective.

OPHTHALMOLOGY

GEORGE E. DE SCHWEINITZ, M.D.....	<i>Professor of Ophthalmology</i>
EDWARD A. SHUMWAY, M.D.....	<i>Lecturer in Ophthalmology</i>
THOMAS B. HOLLOWAY, M.D.....	} <i>Instructors in Ophthalmology</i>
H. MAXWELL LANGDON, M.D.....	
CARL WILLIAMS, M.D.....	
B. F. BAER, M.D...*	
JOHN R. FORST, M.D.....	
W. T. CREIGHTON, M.D.....	} <i>Assistant Instructors in Ophthalmology.</i>
ALEXANDER FEWELL, M.D.....	
P. HOWLAND SHAW, M.D.....	

PRACTICAL WORK IN THE PHYSIOLOGICAL LABORATORY.—The second-year men are each provided with suitable appliances, an optical box, an ophthalmoscope, an artificial eye, color tests, etc., and are instructed in physiological optics and in the physiology of the eye. This course, which consists of a series of laboratory hours, is conducted by the Professor of Physiology and assistants.

The courses scheduled for all regular students are as follows:

	THIRD YEAR	Hours
LECTURE DEMONSTRATIONS AND CLINICAL LECTURES.*	<i>Professor de Schweinitz and Dr. E. A. Shumway.</i> —Twice a week, for first half year.....	32
PRACTICAL WORK.	<i>Ophthalmological Staff.</i> —In sections. One hour a week, for first half year, for each student.....	16

LECTURE DEMONSTRATIONS AND CLINICAL LECTURES.—The subjects covered in this course comprise the methods of examining the patient and the external examination of the eye; functional testing; diseases and injuries of the eye; the eye in its relation to general diseases; medical ophthalmoscopy and medical ophthalmology; and operative ophthalmology.

PRACTICAL WORK. The courses in practical ophthalmology are conducted in the Dispensary for Diseases of the Eye in the University Hospital and in the Eye Wards of the Philadelphia General Hospital. For this purpose the students of the third-year class are divided into sections. The members of each have the opportunity of closely inspecting the patients with external inflammatory diseases of the eye, of seeing the method of applying the remedies, of making the commoner applications utilized in the treatment, of learning the use of the ophthalmoscope so that each student may recognize the healthy fundus and its important

diseased conditions; and of ascertaining the results secured by functional testing, such as the pupillary reflexes, the visual acuteness, the field of vision, the balance of the external ocular muscles, and the refractive errors. During the last month of the course a series of quizzes is given and the work of the entire course is reviewed.

OBSTETRICS

BARTON COOKE HIRST, M.D.....	<i>Professor of Obstetrics</i>
RICHARD C. NORRIS, M.D.....	<i>Assistant Professor of Obstetrics</i>
WILLIAM R. NICHOLSON, M.D.....	} <i>Associates in Obstetrics</i>
JOHN C. HIRST, M.D.....	
EDMUND J. PIPER, M.D.....	
PHILIP FRANCIS WILLIAMS, M.D...	} <i>Instructors in Obstetrics</i>
N. L. KNIPE, M.D.....	
C. D. DANIELS, M.D.....	
G. VICTOR JANVIER, M.D.....	} <i>Assistant Instructors in Obstetrics.</i>
E. P. BARNARD, M.D.....	
L. F. LUBURG, M.D.....	
JOHN C. HIRST, 2D, M.D.....	} <i>Physicians in Charge Southeastern Dispensary.</i>
G. VICTOR JANVIER, M.D.....	
JOHN C. HIRST, 2D, M.D.....	

A graduated course of instruction in Obstetrics is given to the members of the third and fourth year classes in the Maternity Pavilion of the University Hospital, in the Medical Laboratories and in the Out-Patient Department of the Hospital, conducted under the direct control of the Professor of Obstetrics.

THIRD YEAR

Hours

LECTURES. <i>Professor Hirst.</i> —Twice a week.....	64
MATERNITY SERVICE. Each student spends a week in the dormitory, is present at the delivery of about six cases and witnesses all the emergency surgery.	

FOURTH YEAR

CONFERENCES. <i>Professor Hirst.</i> —Once a week.....	32
CLINICS. <i>Professor Hirst.</i> —In sections. Two hours, three times a week, for ten weeks, for each student.....	60
PRACTICAL EXERCISES WITH MANIKINS. <i>Assistant Professor Norris and Assistants.</i> —In sections. Once a week, for ten weeks, for each student.....	10

Hours

RECITATIONS. *Dr. J. C. Hirst.*—In sections. Once a week, for ten weeks, for each student..... 10
MATERNITY SERVICE. Each student spends at least ten days at the Out-Patient Department and delivers on an average ten cases.

The instruction in Obstetrics includes demonstrations of palpation, pelvimetry and the signs of pregnancy to sections of four students. In the clinical and operative obstetrics the treatment of all the complications and pathological consequences of the child-bearing act at all periods is given in the maternity amphitheatre. One clinical conference a week with the whole class is devoted mainly to diagnosis.

Electives in primary and intermediate plastic operations, cystoscopy and office treatment are offered to the fourth-year class.

In the Anna Dike Scott Memorial Amphitheatre an exhibition of all obstetrical operations is given to the members of both the third and fourth year classes.

PRACTICAL EXERCISES IN THE OUT-PATIENT DEPARTMENT. This department is under the direct control of the Professor of Obstetrics. The total indoor and outdoor service amounts to 2,000 cases a year. The complicated cases in this service demanding operative treatment are transported to the University Hospital, and the operations are exhibited to the combined third and fourth year classes. Each student attends in confinement about ten labor cases and serves as assistant in the ambulatory dispensary for a week, where he is trained in gynecological diagnosis.

PRACTICAL WORK IN UNIVERSITY HOSPITAL. Recently a dormitory accommodating four students has been instituted. Each student spends at least a week on this service, sleeping in the dormitory, taking the notes of all patients in the hospital, making rounds and being called to see all cases delivered during the night, as well as all other instructive obstetrical procedures.

NEUROLOGY

WILLIAM G. SPILLER, M.D.....	<i>Professor of Neurology</i>
JAMES W. MCCONNELL, M.D.....	<i>Associate in Neurology</i>
S. D. LUDLUM, M.D.....	} <i>Associates in Neurology and in Neuropathology</i>
WILLIAMS B. CADWALADER, M.D...	
SAMUEL LEOPOLD, M.D.....	} <i>Instructors in Neurology and in Neuropathology</i>
GEORGE WILSON, M.D.....	
JOSEPH MCIVER, M.D.....	} <i>Assistant Instructors in Neurology</i>
NATHANIEL W. WINKELMAN, M.D.	
ABRAHAM M. ORNSTEEN, M.D....	

THIRD YEAR

NEUROLOGICAL DIAGNOSIS INCLUDING NEUROPATHOLOGY. See under Pathology.

FOURTH YEAR

Hours

CLINICAL LECTURES AND LANTERN DEMONSTRATIONS IN NEUROPATHOLOGY. <i>Professor Spiller</i> .—Twice a week first half year; once a week second half year.	48
WARD CLASSES. <i>Drs. McConnell, Ludlum, Cadwalader, Leopold, Wilson and McIver</i> .—In sections. Two hours a week for ten weeks, for each student.	20

NEUROLOGICAL DIAGNOSIS INCLUDING NEUROPATHOLOGY. The course is open also to graduate students. The work is in part clinical. The students of the third year are shown various gross pathological specimens and are taught the signs and symptoms caused by the lesions represented by these specimens. In this way they receive much instruction in the physiology as well as the pathology of the nervous system. When considered desirable, the clinical history of the case illustrated is given. The students are taught the practical application of their knowledge of anatomy and physiology, are instructed in the elementary clinical signs of disease, and are thus prepared for their fourth-year clinical work in neurology. The technique employed in investigation is also taught so far as possible, so as to include the methods of imbedding, cutting, staining, etc., employed in this branch of medicine. The students are in this way prepared to conduct original investigations in the pathology of the nervous system after their graduation, if they so desire. Instruction is also given in the methods of preparation of the brain and cord for gross examination, so that the nervous tissues may not be injured for microscopical study. The instruction in the third year is given by Drs. Ludlum, Cadwalader, Wilson and McIver.

Microscopical sections illustrating many pathological conditions are demonstrated by the lantern to the fourth-year class by Professor Spiller during the year, so that the students are enabled to study the more minute morbid changes occurring in diseases of the nervous system, and to understand the symptoms produced by them. These lantern lectures are co-ordinated with the clinical lectures in order to demonstrate the pathology of the clinical cases shown.

CLINICAL LECTURES. One clinical lecture a week is given at the University Hospital throughout the year by Professor Spiller.

One lecture a week is also given by Professor Spiller during the first half of the year at the Philadelphia General Hospital. An effort is made to systematize the teaching, especially at the Philadelphia General

Hospital, where the large amount of material always at command enables the teacher to select and arrange beforehand the subjects to be discussed.

WARD CLASS INSTRUCTION. This is given both in the University and in the Philadelphia General Hospitals. The class is divided into small sections, so as to give each student the opportunity of personally investigating the cases under the supervision of the instructors.

An elective in Neurology will be given by Dr. Cadwalader in accordance with the arrangements which may be made at the beginning of the session or during its continuance.

In connection with the teaching given in the wards of the University and Philadelphia General Hospitals, advantage is taken of the large outdoor neurological service, students desiring to avail themselves of the opportunity being instructed in the dispensary at times previously arranged. In this way students are brought in contact with nervous diseases in their earlier as well as in their later manifestations. The methods of studying, recording and treating cases are taught. Lectures and demonstrations in electro-therapeutics are given by Dr. McIver to sections of the fourth-year class. The electromedical apparatus used in the outdoor service is of the most modern type, including static, galvanic and faradic instruments. Instruction is given in the use of the methods now employed in the treatment of diseases of the nervous system.

MENTAL DISEASES

CHARLES W. BURR, M.D.....*Professor of Mental Diseases*

FOURTH YEAR

Hours

LECTURES. *Professor Burr.*—Once a week..... 32

All instruction in Mental Diseases is given in the Philadelphia General Hospital. The first five lectures are systematic, dealing with the aetiology and general symptomatology of such affections, all the remainder being clinical lectures. An elective course is also given; each student who takes it examines the patients himself, reporting his findings and diagnoses to the professor for criticism. Especially in these latter exercises he obtains an insight into the general workings of asylum management.

LARYNGOLOGY AND RHINOLOGY

CHARLES P. GRAYSON, M.D.....	<i>Professor of Laryngology and Rhinology</i>
D. N. HUSIK, M.D.....	<i>Chief Instructor in Laryngology and Rhinology. Surgeon in Charge Nose and Throat Dispensary</i>
JUSTIN G. SCHWERIN, M.D.....	<i>Instructor in Laryngology</i>
SAMUEL COHEN, M.D.....	<i>Assistant Instructor in Laryngology</i>

THIRD YEAR

Hours

LECTURES. <i>Professor Grayson</i> .—Once a week, for second half year	16
PRACTICAL WORK IN OUT-PATIENT DEPARTMENT. <i>Professor Grayson and Assistants</i> .—In sections. Once a week, for ten weeks, for each student.....	10

LECTURES AND CLINICS. Covering the anatomy and physiology of the upper air and digestive tracts, these being illustrated by drawings and by dry and wet preparations. The diseases of the nose and its accessory cavities, of the pharynx, the fauces and the larynx, are systematically studied; and in connection with their causation and treatment, emphasis is laid upon the pathologic and therapeutic importance of the systemic conditions with which they are often associated. The surgery of these special regions is also thoroughly demonstrated during the course by a series of clinics.

PRACTICAL WORK IN OUT-PATIENT DEPARTMENT. Throughout equal periods of the session the third-year class attends this course, divided into sections of such size that each student receives an abundance of practical work under the personal supervision of Dr. Grayson and his assistants. The very large service of this dispensary provides ample material for the members of the class to acquire proficiency in the use of the various instruments of examination and treatment, and to become expert in the diagnosis and treatment of the diseases that are more often encountered in general practice.

OTOLOGY

B. ALEXANDER RANDALL, M.D.....	<i>Professor of Otology</i>
RALPH BUTLER, M.D.....	<i>Assistant Professor of Otology</i>
JAMES A. BABBITT, M.D.....	} <i>Instructors in Otology.</i>
BEN. CLARK GILE, M.D.....	
WILLIAM C. WOOD, M.D.....	
SETH A. BRUMM, M.D.....	

HENRY A. SCHATZ, M.D.....	}	<i>Assistant Instructors in Otology</i>
ARTHUR PADILLA, M.D.....		
LEWIS FISHER, M.D.....	}	<i>Instructors in Neuro-Otology.</i>
JOHN P. MULRENAN, M.D.....		

THIRD YEAR

Hours

LECTURES. *Professor Randall*.—Once a week, second half year. . . 16WARD CLASSES. *Professor Randall and Assistant Professor Butler*.

—In sections. Once a week, for ten weeks, for each student. . . 10

LECTURES. Partly clinical, but with abundant illustrations by anatomical and pathological preparations, models, charts and the stereopticon. Operations for diseases of the mastoid and lateral sinus and abscess of the brain are demonstrated on the cadaver, if not upon patients.

PRACTICAL WORK. Practical work is given to the class in subsections of ten or less, in the newly equipped Out-Patient Department or wards of the University Hospital. Individual instruction is given by the dispensary staff in the examination, recording and treatment of patients, the work being delegated to the students so far as they may show themselves competent. All are thus drilled in the use of the head-mirror, in rhinoscopy and Eutachisan catheterization, as well as in simpler measures. In mastoid and other operations selected students assist or operate under strict supervision, and follow the cases in the later dressings. Stress is laid throughout upon simplicity in the essential methods of diagnosis and treatment, with minute and conscientious care in application.

A Sub-Department of Neuro-Otology has been established nearly six years, to which are referred all cases for cerebral localization, etc., by the ear tests, with most satisfactory results.

MEDICAL JURISPRUDENCE

DANIEL J. MCCARTHY, A.B., M.D., *Professor of Medical Jurisprudence*

FOURTH YEAR

Hours

LECTURES. *Professor McCarthy*.—Once a week, second half year. . . 16

ELECTIVES**FOURTH YEAR**

Hours

A number of courses are offered in Medicine, Surgery, Orthopaedic Surgery, Mental Diseases, Neurology, Genito-Urinary Surgery, Dermatology, Ophthalmology, Otology, Laryngology, Plastic Operations in Obstetrics, Cystoscopy, Gynecology, Therapeutics, Physiology of the Nervous System, and in a few other subjects. Each student has available ten hours a week for ten weeks for these electives and must elect courses amounting to at least 60 hours.....60-100

GRADUATE WORK

1.—THE MEDICO-CHIRURGICAL COLLEGE GRADUATE SCHOOL OF MEDICINE OF THE UNIVERSITY OF PENNSYLVANIA

According to the agreement entered into by the University of Pennsylvania and the Medico-Chirurgical College of Philadelphia, at the time of the merger of these two schools a Post-Graduate School of Medicine has been created. For information concerning the Graduate School of Medicine, see separate announcements, copies of which may be obtained from the Dean of the Graduate School of Medicine, Medical Laboratories Building, University of Pennsylvania.

2.—SCHOOL OF HYGIENE AND PUBLIC HEALTH

For information concerning this School, see separate announcement, copies of which can be obtained from the Director, School of Hygiene and Public Health, Laboratory of Hygiene, University of Pennsylvania.

3.—COURSES IN TROPICAL MEDICINE

For information concerning these courses apply to the Director of the Course in Tropical Medicine, Medical Laboratories Building, Hamilton Walk, University of Pennsylvania.

4.—THE DEPARTMENT OF RESEARCH MEDICINE

J. HAROLD AUSTIN, B.S., M.D.....*Professor of Research Medicine.*

————— ROBERT ROBINSON PORTER *Fellow in Research Medicine*

————— ROBERT M. GIRVIN *Fellow in Research Medicine.*

This department, established in 1910 by specific endowment, has for its object the investigation of problems in clinical medicine by means of the fundamental medical sciences. It is equipped in such a way that the methods of chemistry, physiology, pathology, bacteriology and pharmacology may be applied to any clinical problem, with special provisions for distinctly experimental investigation, as well as for observation on patients in the wards of the University Hospital. Opportunity for investigation will be given to instructors in the clinical departments of the School of Medicine and to properly prepared practitioners and students. Although essentially a research department, the department will give a limited amount of elective undergraduate instruction in special subjects.

5.—LABORATORY OF DERMATOLOGICAL RESEARCH

Director.....	<i>The Professor of Dermatology</i>
Assistant Director.....	<i>Dr. Fred D. Weidman</i>
Bacteriologist and Serologist.....	<i>Dr. Thomas M. McMillan</i>
Student Assistant.....	<i>Joseph Hayman, B.A.</i>

Opportunity is afforded in the Laboratory, to graduates properly equipped for the work, to do research work in connection with the subject of Dermatology.

Research problems will also be assigned to a limited number of undergraduates as a part of their elective work of the Fourth Year. This will offer clinical, bacteriologic, serologic, histologic and chemical training, depending on the nature of the problem.

6.—HENRY PHIPPS INSTITUTE

The Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis is intended for the threefold object of research in tuberculosis, of instruction, and as a benefaction to the needy afflicted by tuberculosis. Its research and other activities are in charge of a special directorate, and under appropriate regulations graduate work in its special lines of operation is afforded properly prepared students of this disease. Its possibilities have been decidedly augmented since the completion of the new building in May, 1913. Laboratory facilities, clinical opportunities for the study of medicine and practice in sociology among the tuberculous are offered. Information may be had by addressing either the Dean of the School of Medicine or the Executive Director of Phipps Institute.

7.—WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE

Under appropriate regulations and under approval of the Director of the Laboratory, the facilities of this department are extended to graduate students either individually or as students in the Graduate School of Medicine.

FELLOWSHIPS

THE THOMAS A. SCOTT FELLOWSHIP IN HYGIENE was established in 1892 for the purpose of aiding talented students who desire to become investigators or teachers in the field of sanitary science. The holder of the Fellowship receives a remuneration of \$1,000. per annum. The appointment is made by the Director of the Laboratory of Hygiene subject to the approval of the Provost and the Board of Trustees.

THE GEORGE B. WOOD FELLOWSHIP IN HYGIENE was established in 1912. It is designed to train teachers of Public Hygiene. The holder is expected to devote a year to assisting in class room instruction, in giving demonstrations illustrating special lines of investigation that he may be carrying on during the year. The holder of the Fellowship receives the remuneration of \$700 per annum. The appointment is made under the same conditions as those applying to the Thomas A. Scott Fellowship.

General regulations regarding the above two Fellowships will be found in the general catalogue.

THE WOODWARD FELLOWSHIP IN PHYSIOLOGICAL CHEMISTRY (see page 74).

THE ROBERT ROBINSON PORTER FELLOWSHIP IN RESEARCH MEDICINE was established in 1912 for the purpose of offering an opportunity to individuals who desire to devote a year or more to investigation in the Medical Sciences. The holder of the Fellowship receives a remuneration of \$600 per annum. The appointment dates from July 1st of each year and the award is made by the Professor of Research Medicine subject to approval by the Board of Trustees.

THE ROBERT M. GIRVIN FELLOWSHIP IN RESEARCH MEDICINE was established in 1913. Its purpose is similar to that of the Porter Fellowship and appointment is made in the same way. The compensation is \$650.

THE HENRIETTA HECKSHER FELLOWSHIP IN MEDICAL RESEARCH was established in 1913 for the purpose of offering an opportunity to individuals who desire to devote at least one-half of their time to medical research under the direction or supervision of the Professor of Medicine for a period of at least one year. The holder of the Fellowship receives a remuneration of about \$500 per annum. The award is made by the Professor of Medicine subject to approval by the Board of Trustees.

The term research shall be strictly construed and shall not include teaching or other work not tending to enlarge the boundaries of medical knowledge.

THE SAMUEL DICKSON FELLOWSHIP IN BACTERIOLOGY (see page 74).

BUILDINGS AND EQUIPMENT

LABORATORIES OF PATHOLOGY, PHYSIOLOGY AND PHARMACOLOGY

The LABORATORIES OF PATHOLOGY, PHYSIOLOGY and PHARMACOLOGY were formally opened June, 1904. The building is two stories in height, above a high basement, and measures 340 feet front by nearly 200 feet in depth.

In the basement of the building the entire north front is occupied by the research laboratories of the department of physiological chemistry; the west wing to the museum of applied anatomy, the laboratories of operative surgery, bandaging and operative obstetrics. In the southern portion are various rooms for prosection and anatomical and pathological preparation; and the large laboratory of pharmacy.

The first floor of the building is devoted to physiology and pharmacology and to the laboratories of research medicine. The portion assigned to the first consists of laboratories for practical instruction, for general research work, for subsection teaching, rooms for the professor and assistants, etc. The section for pharmacology consists of a large general laboratory for teaching practical pharmacology, rooms for original research, etc. An equivalent portion of the southern part of this floor is given to the laboratories of research medicine. The second floor is devoted mainly to pathology, the entire north front being given over to laboratories for advanced students in pathology, professors' rooms, administrative offices and to the special research and assistants' rooms. The wings accommodate the laboratory of experimental pathology, the museum, the demonstration-room and the laboratory of comparative pathology and tropical medicine. Another section of this floor is subdivided into smaller laboratories for instruction in neuropathology and surgical pathology, and in osteology.

Besides numerous laboratories, research-rooms, etc., there are four lecture-rooms in the building, two of these being demonstration-rooms with a seating capacity of 185; the others being lecture-rooms with a seating capacity of 300.

LABORATORIES OF CHEMISTRY AND ANATOMY

The CHEMICAL LABORATORIES occupy the first, second and third floors of the Robert Hare Laboratory building; on the second floor is the laboratory of general chemistry and toxicology, and on the third floor that of physiological chemistry. In addition to the main rooms,

there are smaller rooms provided with an adequate number of balances for quantitative work, and special rooms set apart for research.

The ANATOMICAL LABORATORY is at the top of the building and is 140 feet in length by 40 feet in width. It is lighted by windows on all sides, and by skylights.

LABORATORY OF HYGIENE

ALEXANDER C. ABBOTT, M.D., *Director*

The LABORATORY OF HYGIENE was formally opened on February 22, 1892. The building was the gift of the late HENRY CHARLES LEA, of Philadelphia, and the equipment was provided through the munificence of the late HENRY C. GIBSON, of Philadelphia. The building is devoted to graduate and undergraduate work in bacteriology, hygiene and preventive medicine.

THE UNIVERSITY HOSPITAL

The UNIVERSITY HOSPITAL is situated on the University Campus. It is one of the most important agents in the training of the students, an invaluable adjunct to the School of Medicine, and, together with the Out-Patient Department, furnishes ample provision for the teaching of clinical medicine according to the most approved methods. With accommodations for 436 patients, it also affords excellent facilities for bedside instruction. The Hospital Staff are all members of the Faculty of Medicine.

About ten positions as internes in the University Hospital are awarded annually to members of the Graduating Class of School of Medicine, selected from the twenty-five full-time members of the class who have had the highest general average at the end of the third year of the course and from a like percentage or fraction of the men admitted to advanced standing ranked on their third-year average.

The MATERNITY PAVILION, with a capacity of 83 beds, comprises a main building, to which the patients are admitted two weeks before delivery, two wings containing delivery rooms, and the ANNA DIKE SCOTT Amphitheatre. This department is under the charge of the Professor of Obstetrics. Under the supervision of the clinical staff, the students assist in cases of labor and make daily visits, during the puerperium, to the mother and child.

Four third-year students sleep in a dormitory near at hand and are summoned at night to see all cases of labor, etc.

The Maternity Pavilion and the Surgical Wing of the Hospital are being at present greatly enlarged. On the completion of these new additions, the capacity and equipment of the hospital will be much increased.

CLINICAL LABORATORY

An extension to the University Hospital accommodates the medical dispensaries, medical amphitheatre and clinical conference-room, and on the top floor two large laboratories for the teaching of clinical pathology and for the routine laboratory investigation of the hospital cases. The larger room is equipped with desks for the use of the fourth-year students, giving accommodations for 150 men. Each student of the fourth-year class is assigned a desk and is supplied with an outfit including all the ordinary apparatus required in the examination of blood, urine, stomach contents and other secretions of excretions. He is required to supply himself with a microscope so that he will be enabled to conduct all clinical examinations on cases assigned to him in the hospital wards or elsewhere.

Adjoining the fourth-year laboratory is a smaller room equipped in a similar manner and capable of accommodating fifty students each with a working desk. Members of the third-year class are here instructed in clinical laboratory methods. The class is divided into four sections, each of which is assigned one day per week throughout the year. The course covers completely the important laboratory methods of investigation of blood, urine, stomach contents, pathological exudates, secretions, excretions, etc.

A third room accommodates the Staff Laboratory, where the Pathological Resident of the hospital, under the direction of an Instructor, carries on all the preliminary examinations of materials sent from the wards, makes all blood examinations, Widal tests, etc. Subsequent examinations are often made by students of the fourth-year class to whom the cases in the wards are assigned under suitable direction.

WILLIAM PEPPER CLINICAL LABORATORY

HERBERT FOX, M.D., *Director*

Associates

SAMUEL S. KNEASS, M.D.

THOMAS A. COPE, M.D.

DANIEL J. MCCARTHY, M.D.

CHARLES C. WOLFERTH, M.D.

D. L. FARLEY, M.D.

Volunteer Associates

O. H. PERRY PEPPER, M.D.

T. G. McMILLAN, M.D.

WOODWARD FELLOW in Physiological Chemistry.

LEON JONAS, M.D.

SAMUEL DICKSON Fellow in Bacteriology,

FRANK B. LYNCH, M.D.

Resident Pathologist, H. L. BROCKMAN, M.D.

THE WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE, erected through the generosity of the late Dr. William Pepper as a memorial to his father, adjoins the University Hospital. The purposes of the Laboratory are: to promote the interests of the patients by providing facilities for the prosecution of minute clinical studies and original researches, and to advance the interests of science by the publication of the results of such work. No instruction in the Laboratory is given to undergraduates.

The Associates and Volunteer Associates of the Laboratory are appointed for the purpose of carrying out certain lines of investigation for which they have special preparation. The Laboratory does not solicit post-graduate teaching, but has received a limited number of post-graduate students from time to time for the purpose of training them to carry on investigations.

The publications of the Laboratory are issued in the form of contributions, which are the collected reprints of articles issued from the Laboratory and published in various medical journals. These books are compiled as the material collects in sufficient amount and are presented to libraries or to interested individuals upon application.

The Woodward Fellowship in Physiological Chemistry was founded by George Woodward, M.D., to be filled by election by the Board of Managers of the Hospital of the University of Pennsylvania and the Board of Trustees upon nomination by the Director. The incumbent shall give his full time to work in Physiological Chemistry at the Laboratory and publish only from it, under the Laboratory imprint.

The Samuel Dickson Fellowship in Bacteriology is held under similar conditions.

THE HENRY PHIPPS INSTITUTE

COMMITTEE ON PHIPPS INSTITUTE

ACTING PROVOST JOSIAH H. PENNIMAN, MR. S. F. HOUSTON, MR. ARTHUR L. CHURCH, MR. DAVID T. LAYMAN, MR. THOMAS ROBINS, DR. CHARLES J. HATFIELD, DR. ALFRED STENGEL, DR. A. C. ABBOTT, DR. ALLEN J. SMITH.

Staff.—DR. CHARLES J. HATFIELD, Executive Director; DR. H. R. M. LANDIS, Director of the Clinical and Sociological Department; DR. A. J. COHEN, Associate Director, Clinical and Surgical Department.

Instructors.—DR. FRANK A. CRAIG, DR. ISADORE KAUFMAN, DR. JOHN M. CRUCE.

Clinical Assistants.—DR. HUGH M. MILLER, DR. HENRY M. MINTON, DR. JOHN D. DONNELLY.

Gynecologists.—DR. C. C. NORRIS, DR. N. S. ROTHSCHILD.

Social Workers.— ———, Head Social Worker; MISS ABIGAIL M. STOUT, MISS EMMA DU FOUR, MISS EVA D. SHROPE, MISS CORA H. JOHNSON, MISS ELEANOR H. BERKSTRESSER.

Superintendent of Hospital.—MISS MARY A. CLARK.

Pathological Department.—DR. PAUL A. LEWIS, Director.

Biological Division.—DR. LEWIS, In Charge; Assistant, DR. JOSEPH D. ARONSON; MR. F. W. DODGE, Technical Assistant.

Chemical Division.—MISS A. ELIZABETH HILL, In Charge; MISS MARION BUTTS, Technical Assistant.

The Henry Phipps Institute for the study, treatment and prevention of tuberculosis was established by Mr. Henry Phipps, of New York, and afterward transferred by him to the University of Pennsylvania. There has been erected at Seventh and Lombard Streets a beautiful and commodious edifice, embodying the most modern ideas of hospital, sanatorium and laboratory construction. The work of the Institute is divided into two distinct departments, the Laboratory or Research Department, and the Clinical and Sociological Department. The Institute offers facilities for study to the students of the University of Pennsylvania, especially those of the Medical School. Both by visits to the Institution and through the publication of the results of its investigations and research, the Institute has proved valuable to students and physicians throughout the country interested in this type of work.

At present, the care of patients is carried on in co-operation with the State Department of Health of Pennsylvania and the Eagleville Sanatorium Association.

The State Department of Health conducts the dispensary with the personnel and under the supervision of the Henry Phipps Institute.

The Eagleville Sanatorium Association has the use of the hospital wards for the care of advanced cases of tuberculosis. The arrangement is made under conditions that provide for supervision by the Henry Phipps Institute, and opportunity for the study of cases in connection with research problems.

WISTAR INSTITUTE OF ANATOMY AND BIOLOGY

MILTON J. GREENMAN. M.D., Sc.D., *Director*.

HENRY H. DONALDSON, PH.D., Sc.D., *Professor of Neurology*.

HELEN D. KING, PH.D., *Assistant Professor of Embryology*

J. MACPHERSON STOTSENBERG, M.D., *Instructor in Anatomy*.

FREDERICK S. HAMMITT, PH. D., *Fellow in Bio-Chemistry*.

CLARA N. PERINE, *Librarian*.

C. BOWYER VAUX, *In Charge of Publications*.

WALTER J. CROCKER, V.M.D., *Assistant to the Director*.

The WISTAR INSTITUTE, incorporated in 1892 by the University of Pennsylvania and General Isaac J. Wistar, is the first American University Institute devoted to advanced study and research in anatomy and biology.

Through the munificence of the late General Isaac J. Wistar the Institute was established and endowed not only for the advancement of research in anatomy, but also for the preservation and increase of the anatomical museum originally known as the Wistar or Wistar and Horner Museum. The original museum, founded in 1808 by Professor Caspar Wistar, was used as a teaching museum for students of medicine in the University of Pennsylvania. Its development along broader lines, since the organization of the Institute, has greatly increased its scientific value both to the medical students of the University and to biological students throughout the country. It has now become the depository for research materials which are open, under suitable regulations, to the use of capable investigators from all institutions, and through its Advisory Board it has established itself as a central anatomical institute.

Well equipped laboratories and a biological library adjoin the Museum and every facility is provided here for the work of investigators. The chief resources of the Institute are, at the present time, directed to researches in Comparative Neurology, Comparative Embryology and Genetics. No undergraduate teaching is done in the Institute, but arrangements can be made with the Director whereby advanced students or graduates in medicine may be afforded the facilities for research offered by the Wistar Institute.

The Institute publishes the five principal, independent anatomical journals of the United States, namely: *Journal of Morphology*, *The Journal of Comparative Neurology*, *The American Journal of Anatomy*, *The Anatomical Record*, and *The Journal of Experimental Zoölogy*. In these journals appears a large portion of the anatomical research work done in this country. In addition the Institute also publishes a series known as *American Anatomical Memoirs*, in which appear such monographs as are too extensive to be published in the journals; and the *Bulletin of the Wistar Institute* published at irregular intervals and containing material relating more especially to the work of the Institute.

LIBRARY FACILITIES

The basis of the Medical Section of the University Library is formed by the Stillé Collection, presented by the late Alfred J. Stillé, to which additions have been made from the William Pepper Medical Foundation established by the late Dr. William Pepper. The section of Dermatology

has been much enriched by the addition of the large and valuable library of the late Dr. Louis A. Duhring, who died on May 8, 1913, leaving his library, dermatological specimens, etc., to the University, together with funds for keeping up these collections. In addition to purchases, the Medical Section has grown considerably through gifts presented by a number of medical publishers, more particularly Messrs. W. B. Saunders, the J. B. Lippincott Company, Lea & Febiger and P. Blakiston's Son & Co. From most of these are received regularly the new publications issued by them. In addition to these, the University subscribes to about one hundred medical periodicals, which represent a choice selection of the leading medical periodicals of this country and Europe. Through special funds the sets of all the more important periodicals and publications of medical societies have been completed.

A Department Library in the Medical Laboratory Building contains many text-books and periodicals transferred to it from the General University Library, and recently has received through bequest the surgical library of the late Dr. J. Wm. White and the physiological library of the late Dr. Isaac Ott.

LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. In addition to the Medical Section of the University Library, students have access to the Library of the College of Physicians, the second largest medical library in the United States.

DEGREES AND PRIZES—1920

At a public Commencement, held Thursday, June 16, 1920, at the Metropolitan Opera House, the degree of Doctor of Medicine was conferred by Edgar F. Smith, Ph.D., Sc.D., L.H.D., LL.D., Provost, upon the following candidates:

NAME	POST OFFICE	STATE
Armstrong, William Jefferson.....	Kane.....	Pennsylvania
Arnold, Duma Carroll.....	Neuse.....	North Carolina
Bahnmler, Edwin Conrad.....	Wilkes-Barre.....	Pennsylvania
Barber, Wilford.....	Centreville.....	Utah
Barchfeld, Charles Custer.....	Somerset.....	Pennsylvania
Barnhart, Arthur David.....	Scottdale.....	Pennsylvania
Bartecchi, Ferdinand Aloysius.....	Scranton.....	Pennsylvania
Behrens, Charles Frederick.....	Audubon.....	New Jersey
Biro, Louis Pacanosky.....	Newark.....	New Jersey
Bouvy, Leo Benedict.....	Kansas City.....	Kansas
Bower, Wallace.....	Scranton.....	Pennsylvania
Brennan, Thomas Connor.....	Shenandoah.....	Pennsylvania
Breuning, Paul Harold.....	Tacoma.....	Washington
Brinton, Samuel Jervis.....	Centre Square.....	Pennsylvania
Brown, Ambrose McChesney.....	Buena Vista.....	Virginia
Brown, John Carlisle, Jr.....	Vincentown.....	New Jersey
Brown, Philip Walling.....	Colorado Springs.....	Colorado
Brown, Rolla Oscar.....	Pittsburgh.....	Pennsylvania
Burrows, James Henry.....	Williamsport.....	Pennsylvania
Butler, James William.....	Wilmington.....	Delaware
Campion, Richard Joseph.....	Philadelphia.....	Pennsylvania
Cannon, John Francis Xavier.....	Philadelphia.....	Pennsylvania
Cheney, William Clem.....	Farmington.....	Utah
Clark, Robert Nesbitt.....	Wilkes-Barre.....	Pennsylvania
Coffey, Jesse Osborne, Jr.....	Queen City.....	Missouri
Coston, Laila Ann.....	Scranton.....	Pennsylvania
Cress, William Joseph.....	Girardville.....	Pennsylvania
Davis, Luther C.....	Fairmont.....	West Virginia
Del Duca, Vincent Peter.....	Camden.....	New Jersey
De Walt, Horace Edward.....	Sioux City.....	Iowa
Dewar, William Banks.....	Raleigh.....	North Carolina
Dodd, William Earle.....	Martinsburg.....	West Virginia
Ellis, Alexander.....	Camden.....	New Jersey
Esler, James Wallace.....	Tarentum.....	Pennsylvania
Evans, John Lane.....	Brookfield.....	Missouri
Fager, Charles Buffington.....	Harrisburg.....	Pennsylvania
Fewell, John May.....	Rock Hill.....	South Carolina
Fewell, William Sadler.....	Rock Hill.....	South Carolina
Fiske, Seymour.....	Philadelphia.....	Pennsylvania
Floyd, John Smith.....	Butte.....	Montana
Foshay, Lee.....	Montclair.....	New Jersey
Freed, Cecil Forest.....	Parkersburg.....	West Virginia
Freeman, Walter Jackson, Jr.....	Philadelphia.....	Pennsylvania
Gabriel, Albert Heinrich.....	Montclair.....	New Jersey
Gardner, Leon Lloyd.....	Claremont.....	California
Gilbert, Earl Brooks.....	Scottdale.....	Pennsylvania

NAME	POST OFFICE	STATE
Ginsberg, Arthur Morris.....	Kansas City.....	Missouri
Glover, Lawrence Litchfield.....	Haddonfield.....	New Jersey
Grebe, Louis Frederick.....	Stony Creek Mills.....	Pennsylvania
Greenberg, Henry Harry.....	Philadelphia.....	Pennsylvania
Hall, Perry Oliver.....	Harrisburg.....	Pennsylvania
Hart, Patricia.....	Grenola.....	Kansas
Harvey, John, Jr.....	Snow Hill.....	North Carolina
Hazen, John Wallace.....	Hartstown.....	Pennsylvania
Heiken, Charles Anthony.....	Pottsville.....	Pennsylvania
Holloway, Jackson Kenneth.....	Raleigh.....	North Carolina
Houlihan, Carl Thomas.....	Scranton.....	Pennsylvania
Hudock, John.....	Mt. Carmel.....	Pennsylvania
Jaeger, James Rudolph.....	Clarkesville.....	Missouri
Jaffe, Maurice.....	Philadelphia.....	Pennsylvania
Jaquish, Charles Joseph.....	Mansfield.....	Pennsylvania
Jaso, James.....	Newark.....	New Jersey
Jepson, Paul Newton.....	Minneapolis.....	Minnesota
Johnson, George.....	Wallace.....	North Carolina
Kaplan, Samuel.....	Philadelphia.....	Pennsylvania
King, Arthur H.....	Waynesburg.....	Pennsylvania
Kinlaw, William Bernard.....	Rocky Mount.....	North Carolina
Knapp, Joseph Scott.....	Fredonia.....	Pennsylvania
Knauer, Charles Hull, Jr.....	Milton.....	Pennsylvania
Knight, Albert Preston.....	Pottsville.....	Pennsylvania
Koelsch, William Alfred.....	Boise.....	Idaho
Kosker, John J.....	Nanticoke.....	Pennsylvania
Kressler, Kenneth Wolfinger.....	Easton.....	Pennsylvania
Lerch, Claude Brinser.....	Highspire.....	Pennsylvania
Lindsey, Walter Hirst.....	New Castle.....	Pennsylvania
Locke, LeRoy Dyer.....	Bellefonte.....	Pennsylvania
Luqueer, Fred Augustus.....	Olathe.....	Colorado
Lyday, Russell Osborne.....	Brevard.....	North Carolina
McKnight, Roy Bowman.....	Charlotte.....	North Carolina
Matthews, Robert.....	Winton.....	North Carolina
Merkle, Ralph Francis.....	Allentown.....	Pennsylvania
Milliken, Howard Elliott.....	Harrisburg.....	Pennsylvania
Mills, William.....	Arapahoe.....	Nebraska
Minigan, Walter Dency.....	Manchester.....	New Hampshire
Morgan, Julia.....	Carlisle.....	Pennsylvania
Mortimer, Earle Lincoln.....	Harrisburg.....	Pennsylvania
Nast, Max Schaul.....	Butler.....	Pennsylvania
Nelson, Moses Russell.....	Bryn Mawr.....	Pennsylvania
Oast, Thomas Edgar.....	Portsmouth.....	Virginia
Owens, Russell Wayne.....	Salt Lake City.....	Utah
Pangburn, Edward Weddell.....	Elizabeth.....	Pennsylvania
Petry, Howard Kistler.....	Wilkes-Barre.....	Pennsylvania
Pettit, William Alfred.....	Salt Lake City.....	Utah
Pittam, Radford Frederick.....	Kansas City.....	Missouri
Rapoport, Frank M.....	Philadelphia.....	Pennsylvania
Riegel, Donald.....	Philadelphia.....	Pennsylvania
Rowan, Henry Madison.....	Greenville.....	Virginia
Sabel, Meyer.....	Philadelphia.....	Pennsylvania
Saiki, Yoshio.....	Kioto.....	Japan
Schatz, Charles Howard.....	Philadelphia.....	Pennsylvania
Schofield, Frederick Sewall.....	Philadelphia.....	Pennsylvania
Schrier, Philip Charles.....	Vicksburg.....	Mississippi
Semans, Thomas Breckinridge.....	Uniontown.....	Pennsylvania
Seth, John Ambrose.....	Lucinda.....	Pennsylvania

NAME	POST OFFICE	STATE
Smith, Robert William	Canton	Mississippi
Smith, Vincent Joseph	New Britain	Connecticut
Sparrow, Thomas De Lamar	Washington	North Carolina
Spear, Willard Henry	Cleveland	Ohio
Starr, Isaac, Jr.	Philadelphia	Pennsylvania
Stecher, Hilmar Armin	Philadelphia	Pennsylvania
Stitt, Hugh Iseman	Ford City	Pennsylvania
Stokes, Joseph, Jr.	Moorestown	New Jersey
Stone, Russell Bennett	Easton	Pennsylvania
Sunder, Joseph Ellsworth	Jeanette	Pennsylvania
Swan, Theodore Strong	New Brighton	Pennsylvania
Thompson, Hugh Gravis	Charleston	West Virginia
Tuberty, Harold Myron	Sayre	Pennsylvania
Tucker, Francis Henry	Nacogdoches	Texas
Tuff, Louis	Philadelphia	Pennsylvania
Urba, Edward Francis	Waterbury	Connecticut
Veasey, Clarence Archibald, Jr.	Spokane	Washington
Veneroso, Frank	Hazleton	Pennsylvania
Ward, Vernon Leroy	Willard	Utah
Waxman, Harold Emanuel	Pittsburgh	Pennsylvania
Whelan, George Leo	Philadelphia	Pennsylvania
Williamson, Carl Sneed	Columbia	Missouri
Wyant, Richard Philipp	McKeesport	Pennsylvania
Yao, Erh-Chang	Shanghai	China
Ziemer, Harry S.	Adamstown	Pennsylvania
Zubieta, Ernest	Panama	Canal Zone

February 22, 1921. Isabell Blumenthal, New York, N. Y., as of Class of 1920.

Of the foregoing there were from:

California	1	New Hampshire	1
Canal Zone	1	New Jersey	10
China	1	New York	1
Colorado	2	North Carolina	10
Connecticut	2	Ohio	1
Delaware	1	Pennsylvania	67
Idaho	1	South Carolina	2
Iowa	1	Texas	1
Japan	1	Utah	5
Kansas	2	Virginia	3
Minnesota	1	Washington	2
Missouri	6	West Virginia	4
Mississippi	2		—
Montana	1	Total	131
Nebraska	1		

PRIZES AWARDED IN 1920

THE ALUMNI MEDAL and prize of \$50 is offered by the Society of the Alumni of the School of Medicine of the University to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible.) To MAX S. NAST.

THE DR. SPENCER MORRIS PRIZE—The annual income derived from the investment of ten thousand dollars is awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine. To HAROLD E. WAXMAN.

THE DR. SPENCER MORRIS PRIZE—(Medico Chirurgical).—For the highest general average in the Senior Medical Class. Awarded to WILLIAM A. PETTIT.

THE FREDERICK A. PACKARD PRIZE of one hundred dollars is offered by a friend of the University to the member of the Graduating Class who has proven to be the most proficient of the course in Clinical Medicine. To HAROLD E. WAXMAN.

The Professor of Obstetrics offers a prize to the member of the Graduating Class who furnishes the best report of a case in the University Maternity Hospital. To GEORGE WHELAN; honorable mention of ALBERT P. KNIGHT.

A prize is offered by the Professor of Obstetrics to the member of the fourth-year class presenting the best notes on the conferences and clinics of the fourth year in Obstetrics. To WILLIAM EARLE DODD; honorable mention, CECIL F. FREED.

DR. A. O. J. KELLY PRIZE FUND.—Founded March 26, 1912, by contributions from friends of Dr. A. O. J. Kelly, deceased. The Kelly Prize is given to a member of the Fourth-year Medical Class who has made an especially meritorious report of some clinical observation in the regular University work. To WALTER JACKSON FREEMAN; honorable mention, WILLIAM E. DODD.

CHARLES A. OLIVER MEMORIAL PRIZE.—Founded June 16, 1913, by Dr. Charles A. Oliver. This prize, in form of a gold medal, is given to "those students in the Graduating Class in the Department of Medicine who shall annually receive the highest average and pass the best examination in Ophthalmology." To WILLIAM EARLE DODD.

LIST OF STUDENTS.

FOURTH YEAR CLASS.

NAME.	RESIDENCE.	CITY ADDRESS.
Amshel, Frederick	Pittsburgh	206 S. 36th St.
Ashton, Dorothy L. A.B. (Bryn Mawr)	Swarthmore	[502 Cedar Ave.]
Askey, Edwin Vincent B.S. (Allegheny)	Meadville	Hamilton Court
Beardwood, Joseph Thomas, Jr. A.B. (Pennsylvania)	Elkins Park	[Park Ave.]
*Bender, Frank Caspar	Minersville	
Bostwick, Delazon Swift	Ardmore	[Ardmore]
Bothe, Frederick Augustus B.S. (Michigan)	Camden, N. J.	[2916 Cramer St.]
Bronstein, Jake Hannack	Memphis, Tenn.	Dorm. 362 Baird
Brown, Velva V. B.S. (Ottawa)	Oakland, Calif.	234 Melville St.
Catlin, William Granville A.B. (St. John's)	White Haven, Md.	3611 Locust St.
Chadman, Michael Gregory B.S. (Pennsylvania State)	Lancaster	3805 Spruce St.
Cobb, Donnell Borden B.S. (North Carolina)	Goldsboro, N. C.	2601 Lombard St.
Cohen, Milton Henry	Lancaster	206 S. 36th St.
Conlan, Francis Joseph	Pittston	3611 Locust St.
Cooper, David Alexander B.S. (North Carolina)	Henderson, N. C.	do.
Darden, Douglas Beaman A.B. (North Carolina)	Wilson, N. C.	do.
Davis, Morris A.B. (Missouri)	New York City, N. Y.	3900 Pine St.
Deitchman, Louis Samuels A.B. (Missouri)	Youngstown, Ohio	310 S. 40th St.
Dench, Edward Hazlitt	Erie	25 N. 34th St.
Downs, Thomas McKean	Ambler	Chestnut Hill
Drieling, Arthur William B.S. (Pennsylvania State)	McKeesport	3610 Walnut St.
Dunkelberger, LeRoy	Kutztown	3223 Sansom St.
Ehmann, Frederick Harry	Philadelphia	5039 Market St.
Fay, Temple Sedgwick B.S. (Washington)	Seattle, Wash.	3329 Walnut St.
Fitz-Hugh, Thomas, Jr. A.M. (Virginia)	University, Va.	Dorm. 117 McKean
Focht, John Hill	Plantville, Conn.	3455 Walnut St.
Folsom, Theodore Winslow	Florence, Ala.	207 Ashland Ave.
Foote, Lois	Des Moines, Iowa	120 S. 34th St.
Freas, Howard Malcolm A.B. (Colgate)	Trenton, N. J.	Dorm. 30 Memorial Tower
Gamon, Robert Speer A.B. (Maryville)	Knoxville, Tenn.	526 W. Tabor Road
Gilmore, Hugh Richmond, Jr.	Emlenton	3610 Walnut St.
Gonzalez, Abelardo	Merida, Yucatan, Mexico	3712 Locust St.
Greenleaf, Arthur Johnson B.S. (Bucknell)	Quarryville	Dorm. 306 Brooks
Harberg, Sidney	Philadelphia	3220 N. 19th St.

* On leave of absence.

NAME.	RESIDENCE.	CITY ADDRESS.
Harer, William Benson	Williamsport	210 S. 36th St.
Hargis, Estes Henry	Birmingham, Ala.	do.
Harney, James Norman	Plymouth, N. C.	232 S. 38th St.
Hart, Verling Kersev	Cheyenne, Wyo.	3807 Spruce St.
Hawkey, Vincent Grant	Tidioute	Dorm. 427 Baldwin
Hayman, Joseph Marchant, Jr. A.B. (Haverford)	Chestnut Hill	Chestnut Hill
Hernandez, Manuel	San Juan, Porto Rico	3725 Spruce St.
Herrington, Willet Jeremiah	Bad Axe, Mich.	Dorm. 427 Baldwin
Holtzhauser, Ralph Stephen	Philadelphia	2300 E. York St.
Hörnberger, Jennings Howard B.S. (Bucknell)	Milton	Dorm. 414 Franklin
Houser, Karl M. Ph.B. (Franklin and Marshall)	Pennsylvania Furnace	3539 Locust St.
Hunter, Harry Grimmett A.B. (North Carolina)	Hendersonville, N. C.	3611 Locust St.
James, William Lloyd	Pittsburgh	3610 Walnut St.
Jones, Roycroft Clifton	Philadelphia	4304 N. 15th St.
Jones, William Rhys	Scranton	Dorm. 405 Brooks
Keeler, Harold Raudenbush Ph.B. (Lafayette)	Harleysville	Dorm. 26 Graduate
Kennedy, Andrew Aloysius	Hazelton	3243 Chestnut St.
King, Clair Boyd B.S. (Grove City)	Grove City	3610 Walnut St.
Kirk, William W. A.M. (North Carolina)	Jacksonville, Fla.	3711 Locust St.
Kirksey, James Jackson B.S. (North Carolina)	Morganton, N. C.	3611 Locust St.
Kline, Max Otto B.S. (Texas)	Dayton, Tex.	310 S. 40th St.
Kneisley, Bender Balthis A.B. (Roanoke)	Strasburg, Va.	1821 Wallace St.
Knight, Francis Patrick	Scranton	3329 Walnut St.
Krum, Charles Peter B.S. (Albright)	Weissport	3607 Locust St.
Lowrie, William Lyon, Jr. B.S. (Princeton)	Tyrone	3440 Walnut St.
Luke, Odeen B.S. (Utah)	Marysvale, Utah	3473 Sansom St.
McCabe, James Leo	Shenandoah	5822 Florence Ave.
Margolies, Alexander B.S. (Pennsylvania)	Philadelphia	2229 N. 33d St.
Marsden, Wilson Conrad	West Pittston	3611 Locust St.
Mengel, John Geist B.S. (Albright)	Trevorton	3607 Locust St.
Mengel, Willard Geist B.S. (Albright)	do.	3607 Locust St.
Miller, Ford Andrew Ph.B. (Lafayette)	Easton	Dorm. 26 Graduate
Murray, John Milne B.S. (Dartmouth)	Concord, N. H.	20 S. 34th St.
Myers, Fred Earl	Apollo	3329 Walnut St.
Nowell, Stephen Cannon, Jr. B.S. (North Carolina)	Winfall, N. C.	232 S. 38th St.
Nyemetz, Ferdinand William A.B. (Pennsylvania)	Chester	[805 Barclay St.]
Oglesby, Samuel Earl A.B. (Washington and Lee)	Lynchburg, Va.	Dorm. 228 Class of '87
Park, Samuel Nelson	Franklin	3641 Locust St.

NAME.	RESIDENCE.	CITY ADDRESS.
Patton, Edwin Fritz A.B. (Colorado)	Boulder, Colo.	2022 Spruce St.
Perry, Robert Edward	Mt. Olive, N. C.	3611 Locust St.
Persky, Abram H.	Philadelphia	1930 N. 32d St.
Prather, John William A.B. (Transylvania)	State Line, Ky.	3716 Locust St.
Prescott, Frederick Arthur B.S. (Ohio Northern)	Elizabeth	3719 Locust St.
Pyle, Wellden	Jersey City, N. J.	1246 S. 45th St.
Rambo, Victor Clough	Constantinople, Turkey	3607 Baring St.
Reese, Monroe David	Ashland	3611 Locust St.
Renie, Robert Oswald	Arapahoe, Neb.	3710 Walnut St.
Rhoden, Beulah Richard Harold A.B. (Nebraska)	Lincoln, Neb.	L 12, The Pasadena, 3800 Spruce St.
Ritchie, John Columbkille, Jr.	Wilkes-Barre	3611 Locust St.
Rittenberg, Benjamin Bernard	Philadelphia	4135 Westminster Ave.
Robbins, Fred Ross B.S. (North Carolina)	Lenoir, N. C.	Pennsylvania Hospital, 8th and Spruce Sts.
Rogers, Vernon Stover A.B. (Iowa State)	El Paso, Tex.	3815 Spruce St.
Rohwer, Christian Jacob B.S. (Washington)	Spangle, Wash.	3716 Locust St.
Rose, Edward, Jr.	Chattanooga, Tenn.	Dorm. 228 Class of '87
Rothfuss, Edgar Lloyd A.B. (Gettysburg)	Montoursville	3440 Walnut St.
Rothman, Maurice Maxwell	Philadelphia	5919 Christian St.
Rubinstein, Hyman A.B. (Missouri)	Brooklyn, N. Y.	3960 Pine St.
Ruggeri, Charles, Jr. A.B. (Utah)	Helper, Utah	3805 Spruce St.
Rush, Hubert Lowry B.S. (Mississippi)	Meridian, Miss.	4510 Osage Ave.
Sabol, John Gregory A.B. (Grove City)	McKeesport	Dorm. 322 Leidy
Sands, Joseph Evans A.B. (Swarthmore)	Yardley	3329 Walnut St.
Schaffer, Howard William B.S. (Pennsylvania)	Philadelphia	5151 Walnut St.
Shackelford, Walter Lawson B.S. (Mississippi)	Meridian, Miss.	4510 Osage Ave.
Shay, Harry	Philadelphia	304 Poplar St.
Smith, Anderson Jones B.S. (Guilford) B.S. (North Carolina)	Black Creek, N. C.	123 S. 36th St.
Snyder, Norman Earl	Lancaster	3409 Walnut St.
Spaulding, Olive Gertrude A.B. (South Dakota)	Armour, S. D.	120 S. 34th St.
Stolze, Joseph Ariel A.B. (Wisconsin)	Wausau, Wis.	3805 Spruce St.
Sullivan, Denis Timothy Joseph B.S. (Dartmouth)	Concord, N. H.	20 S. 34th St.
Sullivan, Jeremiah Jennings B.S. (Pennsylvania State)	Lancaster	3610 Walnut St.
Sweeney, John Augustin	Philadelphia	3711 Locust St.
Sweeney, Joseph Russell B.S. (Pennsylvania State)	Tamaqua	3607 Locust St.
Taggart, George William	Philadelphia	5905 Cedar
Taylor, Shahane R. B.S. (North Carolina)	Kinston, N. C.	3611 Locust St.

NAME.	RESIDENCE.	CITY ADDRESS.
Thorp, Adam T. A.B. (North Carolina)	Rocky Mount, N. C.	2601 Lombard St.
Tillotson, Rulon Squires A.B. (Utah)	Ogden, Utah	3805 Spruce St.
Tinsman, James Herbert A.B. (Pennsylvania)	Philadelphia	1210 Harrison St.
Van Meter, Virginia Cunningham	Denver, Colo.	301 St. Mark's Sq.
Wannamaker, Edward Jones A.B. (Wofford)	Orangeburg, S. C.	3329 Walnut St.
Weinstein, Philip	Jacksonville, Fla.	Dorm. 316 Leidy
Welch, Leonard L.	Wadley, Ala.	3611 Locust St.
West, Lyle Battey	Chattanooga, Tenn.	Dorm. 117 McKean
Whelan, Anna B.S. (Wisconsin)	Mondovi, Wis.	120 S. 34th St.
Wilcox, Frederic Putman, Jr.	Philadelphia	2031 Diamond St.
Woodward, King Grier B.S. (Wisconsin)	Peoria, Ill.	3329 Walnut St.
Worthington, Dorothy A.B. (Wellesley)	East Greenwich, R. I.	4207 Sansom St.
Wu, Hsing-Yeh	Peking, China	226 S. 38th St.

THIRD YEAR CLASS.

Allen, Arthur W.	Hazleton	3329 Walnut St.
Amadeo, Jose Antonio	San Juan, Porto Rico	3216 Chestnut St.
Ammarell, John Samuel	West Leesport	3607 Locust St.
Appleyard, Joseph	Beaverdale	234 S. 39th St.
Atwood, Harry David A.B. (Missouri)	Brookfield, Mo.	127 S. 36th St.
Bach, Clarence Edwin B.S. (Wisconsin)	Milwaukee, Wis.	3605 Locust St.
Bacon, John Free	York	Dorm. 111 Franklin
Bantley, David Straub	Scalp Level	3440 Walnut St.
Barney, Azel P. A.B. (Pennsylvania)	Thompsonville, Conn.	Hamilton Court
Bell, Edwin Massie A.B. (Washington and Lee)	Lewisburg, W. Va.	Dorm. 404 Brooks
Bennion, Theron W. B.S. (Utah)	Salt Lake City, Utah	3805 Spruce St.
Bloom, Colonel Hugh	Ogontz	3610 Walnut St.
Boland, Stanley Walter	Dunmore	234 S. 39th St.
Book, J. Edward	Harrisburg	4048 Walnut St.
Brady, Raymond John	Newark, N. J.	3607 Locust St.
Brewer, Earl Lane A.B. (Pennsylvania)	Philadelphia	413 Lyceum Ave.
Bryce, David Andrew	Pittsburgh	4921 Cedar Ave.
Buckman, Lewis Taylor B.S. (Massachusetts Agricultural)	Wilkes-Barre	Dorm. 404 Brooks
Burket, D. Gordon	Altoona	3610 Walnut St.
Caplan, Isador	Fall River, Mass.	3046 Oxford St.
Cardone, John Battista	Millburn, N. J.	Dorm. 111 Franklin
Chappell, Leslie Edward B.S. (North Carolina)	Candor, N. C.	3457 Walnut St.
Charlton, Alice G. B.A. (Wellesley) M.A. (Wisconsin)	Milwaukee, Wis.	233 S. Melville St.
Charnock, Maurice P.	Butler	Dorm. 24 Graduate
Chianese, Cesare Chester A.B. (Pennsylvania)	Trenton, N. J.	605 Greenwood Ave.

NAME.	RESIDENCE.	CITY ADDRESS.
Clark, Ernest Walton, Jr. B.S. (North Carolina)	Belhaven, N. C.	3457 Walnut St.
Clark, Harold Stevens A.B. (North Carolina)	Leicester, N. C.	223 S. 37th St.
Clarke, Francis Mann B.S. (North Carolina)	Middletown, N. C.	3327 Powelton Ave.
Coates, Frank Fulton	Coatesville	4211 Chestnut St.
Cook, Edward Joseph	Shenandoah	258 S. 38th St.
Coon, Harold Macomber	Stevens Point, Wis.	3711 Walnut St.
Cottrell, James Ewing	Knoxville, Tenn.	Dorm. 425 McKean
Cowart, Edmund Marcellus B.S. (Mississippi)	Austin, Tex.	4510 Osage Ave.
Crandell, Roy Wendell	Williamsport	27 N. 34th St.
Crosland, Edward Samuel, Jr.	Lititz	Dorm. 429 Class of '87
Crowell, Gordon B. A.B. (North Carolina)	Lincolnton, N. C.	3416 Powelton Ave.
Culpepper, S. Clifton	Wiggins, Miss.	4510 Osage Ave.
Edgar, Malcolm Shepherd A.B. (Princeton)	Jamesburg, N. J.	3329 Walnut St.
Francis, Reginald Keifer	Waynesboro	3440 Walnut St.
Freeland, Edward McKenzie A.B. (Pennsylvania)	Elkins Park	Dorm. 411 Leidy
Gempel, Paul A. B.S. (Kansas)	Leavenworth, Kan.	3805 Spruce St.
Gilman, Robert L. B.S. (Wisconsin)	Oshkosh, Wis.	3711 Walnut St.
Goldstein, Leopold	Camden, N. J.	[1425 Broadway]
Gouley, Benjamin Alexis	Philadelphia	2634 Kensington Ave.
Greenwald, Joseph	do.	1223 Snyder Ave.
Haberland, Erwin John B.S. (Wisconsin)	Verona, Wis.	3605 Locust St.
Harden, Robert Norman	Commerce, Ga.	3416 Powelton Ave.
Harrington, Carey Lavier	Greenville, N. C.	223 S. 37th St.
Herring, James B.	Ottawa, Ill.	3715 Spruce St.
Hirsh, Joseph Emmet B.S. (Alabama)	Birmingham, Ala.	Dorm. 328 Franklin
Hollingsworth, Herman Hale A.B. (Indiana)	Goshen, Ind.	954 S. Paxon St.
Irvine, Robert Kenneth B.S. (Wisconsin)	Manawa, Wis.	3805 Spruce St.
Jackson, Sydney Charles	Madison, Wis.	5633 Larchwood Ave.
Jefferies, Marjorie Sharps A.B. (Bryn Mawr)	Narberth	[111 Narberth Ave.]
Jones, Ira Fulton B.S. (Mississippi)	Hernando, Miss.	3610 Walnut St.
Keller, Charles Ritner	Bloomsburg	3329 Walnut St.
Kelly, Gerald Aloysius	Jessup	258 S. 38th St.
Kenney, Joseph Sylvester	Scranton	3733 Spruce St.
Kimbrough, Robert Alexander	Blue Mountain, Miss.	3610 Walnut St.
King, Luther John	Fulda, Minn.	215 S. McAlpin St.
Kistler, Clark Suger	Allentown	Dorm. 216 Foerderer
Klemmer, Roland Nickolaus A.B. (Franklin and Marshall)	New Holland	Dorm. 433 Class '87
Klussman, Richard Mansfield	Toledo, Ohio	3610 Walnut St.
Kopeika, Moses	Philadelphia	6138 Pine St.
Kressley, Clairmont Arthur A.B. (Franklin and Marshall)	Allentown	3805 Spruce St.
Leaman, William Gilmore, Jr.	Philadelphia	3700 Baring
Levy, Anna Lillian	Scranton	4532 Regent St.
Lockwood, Vernon Arthur	Harpersville, N. Y.	[Rydal]

NAME.	RESIDENCE.	CITY ADDRESS.
Loffredo, Louis A.B. (Pennsylvania)	East Hampton, Conn.	3709 Locust St.
Loomis, John Lawrence B.S. (Wisconsin)	Swarthmore	[47 Amherst Ave.]
Loudenslager, Paul Edward A.B. (Gettysburg)	Harrisburg	3329 Walnut St.
McCloskey, Bernard J.	Johnstown	Dorm. 314 Leidy
Mallard, James Jefferson A.B. (Southwestern)	Jacksonville, Tex.	Dorm. 361 Baird
Marshall, William R.	Aspinwall	3610 Walnut St.
Milbank, George Edward A.B. (Missouri)	Chillicothe, Mo.	4043 Locust St.
Millard, Robert Dinsmore B.S. (Wisconsin)	Antigo, Wis.	3605 Locust St.
Morris, Carlyle A.B. (North Carolina)	Maysville, N. C.	3700 Locust St.
Mosser, William Blair	Huntingdon	Dorm. 361 Baird
Norris, Samuel Royal L. B.S. (North Carolina)	Jacksonville, Fla.	3611 Locust St.
Ohlson, Albin Victor	Kane	3719 Locust St.
Otterbein, Ralph Frederic	Port Carbon	128 S. 36th St.
Pahno, George John B.S. (Georgia)	Savannah, Ga.	3440 Walnut St.
Parrish, Charles R. B.S. (Utah)	Farmington, Utah	4247 Walnut St.
Paul, James P. A.B. (Utah)	Salt Lake City, Utah	3805 Spruce St.
Payne, Franklin L.	Raleigh, N. C.	3715 Locust St.
Price, Robert Barber	Charleston, W. Va.	Dorm. 332 Franklin
Prieto, Ezequiel	Philadelphia	3928 Pine St.
Ramonat, Harold Eugene	Shenandoah	Dorm. 212 Franklin
Ramsay, James Graham A.B. (North Carolina)	Salisbury, N. C.	3700 Locust St.
Reese, George Grant	Shamokin	Bartram Apts.
Robinson, William Henry	Greensburg	3610 Walnut St.
Ross, Robert Alexander B.S. (North Carolina)	Morganton, N. C.	3700 Locust St.
Rummell, Robert Jefferson A.B. (Missouri)	Columbia, Mo.	127 S. 36th St.
Russell, Roy Dean A.B. (Kansas)	Great Bend, Kan.	3805 Spruce St.
Rykken, Felix Christian A.B. (North Dakota)	Mayville, N. D.	3440 Walnut St.
Samaniego, Arturo Valentin	Los Angeles, Calif.	3731 Locust St.
Schumann, Max	Philadelphia	1107 N. 41st St.
Seitzick, Hannah Elizabeth	Millville, N. J.	120 S. 34th St.
Shnayerson, Ned. B.S. (Dartmouth)	Paterson, N. J.	20 S. 34th St.
Slifkin, David Jacob	Bluefield, W. Va.	Dorm. 385 Lippincott
Smith, Jay Donald	Harrisburg	Dorm. 24 Graduate
Smith, William B.	Catasauqua	3610 Walnut St.
Stevenson, Hyrum S. A.B. (Utah)	Salt Lake City, Utah	3805 Spruce St.
Straub, Elmer Levi, Jr. A.B. (Pennsylvania)	Minersville	251 Sydney St.
Tayloe, John Cotten B.S. (North Carolina)	Washington, N. C.	3700 Locust St.
Thomas, Atha	Brownsville, Tenn.	3716 Locust St.
Thomas, Jessie Eliza A.B. (Smith)	Huron, S. D.	4119 Pine St.

NAME.	RESIDENCE.	CITY ADDRESS.
Thompson, Malcolm Drake	Mt. Sterling, Ky.	3329 Walnut St.
Thompson, Raymond Jack	Butler	do.
Tucker, Stephen B.	Nacogdoches, Tex.	3721 Locust St.
Voorhees, Earle W.	Poughkeepsie, N. Y.	Dorm. 325 Franklin
Wagoner, George W., Jr.	Johnstown	3641 Locust St.
Weiner, Joseph Gaillard	Philadelphia	1024 N. 2d St.
Weissman, Marcus Irwin	do.	1026 N. 2d St.
White, Thomas Preston	Lexington, Va.	3610 Walnut St.
Wilson, Raymond Newton	Kittanning	do.
Winn, Samuel Lawrence	Chester	Dorm. 362 Baird
Wood, Edward N.	Pittsburgh	Dorm. 234 Baird
Zobel, Arthur Cuno Frank	Johnstown	do.

SECOND YEAR CLASS.

Appellaniz, Jose B.S. (Porto Rico)	San Juan, Porto Rico	3915 Pine St.
Atlee, Edward Dillingham	Philadelphia	2039 Pine St.
Bachman, Carl Edwin A.B. (Pennsylvania)	Reading	3702 Locust St.
Barba, Philip Stanley B.S. (Princeton)	Philadelphia	3107 Coulter St.
Barnwell, John Blair A.B. (Trinity)	New York City, N. Y.	3637 Locust St.
Barrett, Harold Gates	Scranton	3440 Walnut St.
Boyer, John F.	Allentown	3607 Locust St.
Bullard, Dexter M. Ph.B. (Yale)	Rockville, Md.	4231 Osage Ave.
Bush, Ralph Kenneth	Manasquan, N. J.	5442 Trinity Place
Cadman, Robert Blakemore B.S. (Pennsylvania)	Hastings	3610 Walnut St.
Cardona, Juan Primo	Ponce, Porto Rico	3449 Woodland Ave.
Cianfrani, Theodore	Philadelphia	1217 Morris St.
Cohen, Louis	do.	429 S. 46th St.
Collings, Ruth Mary A.B. (Pomona)	do.	4510 Springfield Ave.
Crowley, Joseph Wright	Haddonfield, N. J.	[58 Euclid Ave.]
Cummings, Clarence Wright A.B. (Westminster)	East Brook	3805 Spruce St.
Curtis, Lawrence A.B. (Yale)	Derby, Conn.	54 W. Greenwood Ave.
D.D.S. (Pennsylvania)		
Darby, Hawthorne A.B. (De Pauw)	Colfax, Ind.	120 S. 34th St.
Debayle, Enrique	Leon, Nicaragua	3616 Chestnut St.
Drake, Alonzo Henry Boyer	Philadelphia	2762 Pratt St.
Dunbar, David McCarrell A.B. (Washington and Jefferson)	Burgettstown	3440 Walnut St.
Eichhorn, Oscar Julius A.B. (Dickinson)	Lonoconing, Md.	3607 Locust St.
Elfman, Louis Kenneth	Philadelphia	617 S. Conestoga St.
Ellson, John Vernon, Jr.	do.	2715 N. Park Ave.
Elterich, Theodore Ottmar A.B. (Washington and Jefferson)	Pittsburgh	3222 Chestnut St
Ermann, Hortense B.S. (Pennsylvania)	Philadelphia	1955 N. 19th St.
Euster, Alfred Abraham	Camden, N. J.	524 Benson St.
Ferguson, Lewis Kraeer A.B. (Westminster)	Washington	Dorm. 34 Graduate
Firestone, Henry Allen	McKeesport	206 S. 36th St.
Fowle, Lester Perham	Danville	3805 Spruce St.

NAME.	RESIDENCE.	CITY ADDRESS.
Freas, Ella Margaret A.B. (Mount Holyoke)	Trenton, N. J.	4341 Baltimore Ave.
Gallagher, John Wesley, Jr.	Paulsboro, N. J.	3440 Walnut St.
Gash, Isadore William	Philadelphia	3145 Diamond St.
Gillespie, Franklin Simcox	Swarthmore	3329 Walnut St.
Glauser, Frank	Philadelphia	2050 Germantown Ave.
Goldberg, Samuel Joseph	do.	5759 Pine St.
Hanner, George William	Milton	2105 N. 11th St.
Harris, Stanley Edwards A.B. (Princeton)	Philadelphia	218 S. Farragut Terrace
Heberling, John Atherton B.S. (Bucknell)	Chester	218 S. 37th St.
Henderson, Jonathan Kearsley	Philipsburg	3641 Locust St.
Hertzog, Solis Cohen Bogh	Oley	3223 Sansom St.
Hicks, Harvard Raymond	Spokane, Wash.	3709 Locust St.
Hirata, Mitsuo Suburo	Miyeku, Japan	14 N. 36th St.
Jacobs, Maurice Spencer	Philadelphia	1402 S. 7th St.
Kaufman, Albert Ross B.S. (Washington and Jefferson)	New Kensington	3440 Walnut St.
Killen, Charles MacNeal, Jr.	Philadelphia	4511 Pine St.
Knott, Mary Frank	do.	3928 Locust St.
Kuhn, Kenneth Stewart	Easton	3435 Chestnut St.
Laub, Irene Frances	Bath	120 S. 34th St.
Lepperd, Floyd Charles A.B. (Dickinson)	Duncannon	3607 Locust St.
Lintzmeyer, Emil Alfred	Philadelphia	6130 Morton St.
Long, Charles-Francis A.B. (Haverford)	Wilkes-Barre	Dorm. 34 Thomas Penn
Lowry, John Edward	Flushing, N. Y.	4076 Powelton Ave.
Lynch, Ralph B.S. (Dartmouth)	Greensburg	3807 Spruce St.
McCarty, Arthur Clayton A.B. (Pennsylvania)	Louisville, Ky.	Dorm. 344 McKean
McShane, James Kane	Philadelphia	1528 N. 15th St.
McVeigh, Charles Johnson Derland Ph.B. (Lafayette)	do.	3424 Disston St.
Mansfield, R. J. B.S. (Colgate)	New Britain, Conn.	4231 Osage Ave.
Mehring, Percy Leroy A.B. (Gettysburg)	Taneytown, Md.	3610 Walnut St.
Meyers, Solomon Benjamin	Philadelphia	444 S. 62d St.
Moore, Raymond Burton	Wilmington, Del.	Dorm. 436 Baird
Moss, Ralph Vernon	Philadelphia	220 S. 39th St.
Muendel, Edward August	West Hoboken, N. J.	3457 Walnut St.
Nelson, Harry	Salem, N. J.	3610 Walnut St.
Oast, Fred Funsten	Portsmouth, Va.	3329 Walnut St.
O'Brien, Lenora R.	Harrisburg	4041 Locust St.
Palomeque, Emilio Jose	Merida, Yucatan, Mexico	3602 Chestnut St.
Pigossi, Dante B.S. (Ohio Northern)	Greenock	3719 Locust St.
Porter, Roland DeLance	Athens	3440 Walnut St.
Pugliese, Francis Michael	Pittston	3457 Walnut St.
Ramirez, Ramon Eladio	Mayaguez, Porto Rico	3608 Locust St.
Robin, Nathaniel Halpern	Pittsburgh	3323 Walnut St.
Schaadt, Thomas Evan	Allentown	210 S. 36th St.
Sanders, Miller Abram A.B. (Hampden Sidney)	Blountville, Tenn.	3709 Locust St.
Schenck, Harvey Paul B.S. (Haverford)	Philadelphia	5335 Locust St.

NAME.	RESIDENCE.	CITY ADDRESS.
Schmidt, William Aloysius	Shenandoah	Dorm. 212 Franklin
Shaub, Paul Daniel	New Freedom	3440 Walnut St.
Shelley, Elmer Graybill	Richfield	3457 Walnut St.
Shewell, William Irvin	Philadelphia	1732 Spruce St.
Sprenkel, Edward Eyster	York	3608 Walnut St.
Summerill, Garnett	Penn's Grove, N. J.	Dorm. 374 Hopkinson
B.S. (Rutgers)		
Sunderman, Frederick William	Juniata	3440 Walnut St.
B.S. (Gettysburg)		
Thayer, Robert W.	Trinity, N. C.	do.
Taylor, Edwin M.	Hoxie, Kan.	3327 Walnut St.
A.B. (Kansas)		
Thorpe, Edward S., Jr.	Haverford	[417 Lancaster Ave.]
B.S. (Haverford)		
Turchi, John D.	Philadelphia	1169 S. 10th St.
Vastine, Douglas Hursh	Catawissa	Dorm. 354 Class of '87
Vastine, Jacob Hursh	do.	Dorm. 356 Class of '87
Ward, Elizabeth	Camden, N. J.	[553 Washington St.]
Weiss, Charles	New York City, N. Y.	1728 Memorial St.
Ph.D. (Pennsylvania)		
Whitehill, James Lorrin	Hookstown	3607 Locust St.
B.S. (Grove City)		
Williams, John Conrad	Philadelphia	154 Mayland St.
Witherow, Lester Stuart	Taneytown, Md.	120 S. 37th St.
B.S. (Gettysburg)		
Zucker, Abram Meyer	Canonsburg	Houston Club
Zulick, Thomas C., Jr.	Easton	3807 Spruce St.
Ph.B. (Lafayette)		

FIRST YEAR CLASS.

Andrews, Katherine S.	Harrisburg	5442 Woodland Ave.
A.B. (Wellesley)		
Avin, Joseph	Philadelphia	3047 Susquehanna Ave.
Bauer, August Robert	Asheville, N. C.	3611 Locust St.
Black, William Herbert	Altoona	3909 Spruce St.
Blair, Andrew, Jr.	Carlisle	318 S. 10th St.
Blumenfield, Ralph	Philadelphia	2543 N. 32d St.
Bodine, Marc William	Wellsboro	3908 Spruce St.
Bromer, Albert Willard	Schwenksville	515 S. 42d St.
A.B. (Yale)		
*Brunswick, Alfred	Philadelphia	3421 N. 19th St.
Burt, Edward Ford	Hammonton, N. J.	3706 Locust St.
Butler, Harry	Bangor, Me.	215 S. McAlpin St.
A.B. (Maine)		
Campbell, Cyril Frank	Hopewell	3220 Chestnut St.
Cates, Samuel Clark	East Vassalboro, Me.	260 S. 38th St.
M.S. (State)		
Caton, McKee	Denton, Tex.	3260 Chestnut St.
A.B. (Texas Christian)		
Clayton, Edward Steele, Jr.	Lewisburg, Tenn.	3721 Locust St.
Cohen, Alexander Charles	Philadelphia	986 N. 7th St.
Cowan, James Alexander, Jr.	Mount Pleasant	219 S. 36th St.
A.M. (Virginia)		
Cowell, Edward H.	Athens	3329 Walnut St.
Cutler, Jacob	Camden, N. J.	[1312 Princess Ave.]
Deak, Alex P.	Jermyn	3408 Walnut St.

* Withdrawn.

NAME.	RESIDENCE.	CITY ADDRESS.
Deitch, Yetta Ethel A.B. (Pennsylvania)	Philadelphia	3123 Norris St.
Emery, Raymen Graham A.B. (Washington and Jefferson)	Eighty Four	Houston Club
Erdman, Joseph	Tarrytown, N. J.	Dorm. 52 Memorial Tower
First, Arthur	Philadelphia	5651 Larchwood Ave.
Fletcher, Louis	do.	511 S. 55th St.
Fluehr, Lawrence Francis	do.	2019 E. Susquehanna Ave.
Fry, Wilfred Eyles	do.	204 S. 36th St.
Fuchs, Frederick Jacob	do.	3553 Janney St.
Gardner, William James A.B. (Washington and Jefferson)	McKeesport	Dorm. 43 Memorial Tower
Gershon-Cohen, Jacob	Philadelphia	1512 Frankford Ave.
Goldstein, Marvin Bernard	Youngstown, Ohio	3435 Walnut St.
Greene, Alexander Macomb A.B. (Princeton)	Merchantville, N. J.	[Merchantville, N. J.]
Griffith, Charles William	Republic	3220 Chestnut St.
Grow, Walter Lowrie A.B. (Pomona)	Highland, Calif.	3440 Walnut St.
Hacker, Raymond C.	Philadelphia	1400 Lindley Ave.
Hadden, Samuel Bernard	Dunmore	3728 Walnut St.
Hawley, Sydney James	Seattle, Wash.	3329 Walnut St.
Hehn, Arthur Clarence	Wilkes-Barre	226 S. 38th St.
Henry, Ralph Howard	Allentown	3731 Spruce St.
Herman, Albert	Philadelphia	1611 South St.
Howell, John Carnett	Altoona	3407 Walnut St.
Humphreys, Edward Twining Ph.B. (Yale)	Montreal, Canada	3412 Walnut St.
Jennings, Arnold H. A.B. (Princeton)	Philadelphia	6012 Greene St.
Jones, Louis Watres	Wilkes-Barre	3312 Walnut St.
Klaus, Isidore Goncer	Philadelphia	2419 S. Orkney St.
Krueger, Irwin Carl	Erie	3721 Locust St.
Landis, James Everhart	Reading	3619 Locust St.
Largey, Arthur Marietta	Aspinwall	3731 Spruce St.
LeFevre, George Lewis B.S. Econ. (Pennsylvania)	Muskegon, Mich.	3809 Locust St.
Lewis, James Poland	Philadelphia	4508 Chestnut St.
Litt, Edward Theodore	do.	5703 Woodland Ave.
Livingstone, Jess Swanton	Norman, Okla.	3728 Walnut St.
McCoy, Bernice B.S. (Ottawa)	Ottawa, Kan.	234 S. Milville St.
McKelvey, Paul Grant A.B. (Washington and Jefferson)	Derry	218 S. 37th St.
McNaugher, William McMillan B.S. (Westminster)	Pittsburgh	Dorm. 34 Graduate
McVeagh, Thomas C.	Honolulu, H. T.	1537 E. Montgomery Ave.
Malaun, Murvinton Hunter	Carbondale	3945 Baltimore Ave.
Malven, Donald	Pleasant Valley, N. Y.	1803 S. 58th St.
Meyers, Samuel	Philadelphia	3106 Clifford St.
Miller, Morell Waldo B.S. (Pennsylvania)	Abbottstown	3417 Walnut St.
Miller, Samuel S.	Philadelphia	1535 S. 6th St.
Monheimer, Herbert	Smethport	The Normandie
Morton, Arthur Price	Graham, Va.	4432 Sansom St.
*Myers, Henry Francis, Jr. A.B. (Franklin and Marshall)	Lancaster	3459 Chestnut St.

NAME.	RESIDENCE.	CITY ADDRESS.
Nicholas, Rae V.	Philadelphia	2401 S. 5th St.
Noon, Russell, Alleyne B.S. (Gettysburg)	Listie	3417 Walnut St.
Parker, Paul Hepworth	Southampton	3614 Locust St.
Pinson, Jacob David A.B. (Pennsylvania)	Philadelphia	1402 N. Marshall St.
Polk, Florence Knouff A.B. (Goucher)	Millersburg	4244 Pine St.
Powis, Ethel Martha A.B. (Mount Holyoke)	Trenton, N. J.	4341 Baltimore Ave.
Prather, Perry Franklin A.B. (Dickinson)	Clear Spring, Md.	318 S. 10th St.
Radbill, Samuel	Philadelphia	8221 Tinicum Ave.
Reed, Robert Jeffrey, Jr. A.B. (Washington and Jefferson)	Wheeling, W. Va.	Dorm. 43 Memorial Tower
Rentschler, Calvin Balthaser	Hamburg	3709 Locust St.
Rentschler, Edwin B.	do.	do.
Robertson, Hugh Radle	Warren	3809 Locust St.
Robinson, Louis C.	Philadelphia	2168 N. Franklin St.
Robson, George McCrea A.B. (Davidson)	Davidson, N. C.	4334 Sansom St.
Rodman, Ellwood Warren	Beverly, N. J.	[Broad and Putman Sts.
Russell, Julia	Rochester, N. Y.	3264 Sansom St.
Schatz, Louis Bernard	Philadelphia	2838 Richmond St.
Seltzer, Benjamin P.	do.	2307 S. 7th St.
Senger, Emil Max	do.	3118 Market St.
Shapiro, Richard Paul	do.	5533 Delancey St.
Shiffer, Paul Howard	Stroudsburg	3260 Chestnut St.
Sickel, Emanuel	Lakewood, N. J.	3435 Walnut St.
Snoke, Paul Otterbein	Philadelphia	5026 N. 11th St.
Spackman, Edgar Wilson	do.	520 S. 55th St.
Stewart, Charles	do.	1123 Foulkrod St.
Stiles, Merritt Henry	Tacoma, Wash.	3329 Walnut St.
Swartz, George K. A.B. (Susquehanna)	State College	3733 Locust St.
Toland, Owen Jones B.S. (Princeton)	White Marsh	1326 Walnut St.
Tracey, Edward J. Ph.B. (Yale)	Norwalk, Conn.	215 S. McAlpin St.
Vollmer, Albert M.	East San Diego, Calif.	33 S. 50th St., Apt. 6
Wallace, Charles Hodge, Jr.	St. Joseph, Mo.	Dorm. 366 Baird
Walton, Brooks Lamar	Williamsport	3929 Baltimore Ave.
Wenner, John J. Ph.D. (Pennsylvania)	Allentown	938 S. 58th St.
White, Gilbert W.	East Waterford	3610 Walnut St.
Whitney, Dorothea Farnham	South Sudbury, Mass.	3643 Locust St.

SUMMARY.

	Men.	Women.	Total.
Students of the Fourth Year Class.....	113	8	121
Students of the Third Year Class.....	114	5	119
Students of the Second Year Class.....	87	8	95
Students of the First Year Class.....	91	8	99
Total.....	405	29	434

